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January 20, 2004

VIA HAND DELIVERY
Walter Thomas, Secretary
Alabama Public Service Commission
RSA Union Building, 8th Floor
100 North Union Building
Montgomery, Alabama 36104

RE: Docket Number: 29054
Implementation of the Federal Communications Commission's Triennial Review Order (Phase II-Local Circuit Switching)

Dear Mr. Thomas:

Enclosed please find the original and ten copies of Notice of Filing Proprietary Testimony Under Seal and Notice of Filing Redacted and/or Non-Proprietary Testimony to be filed in the above-referenced matter.

Should you have any questions regarding this matter, please advise. Your assistance in this matter is greatly appreciated.

Sincerely,

Robert E. Poundstone IV

REP:brr
enclosures

ALABAMA PUBLIC SERVICE COMMISSION

IN RE: Implementation of the Federal Communications Commission's Triennial Review Order (Phase II - Local Switching for Mass Market Customers)	))))	**Docket No. 29054**

NOTICE OF FILING PROPRIETARY TESTIMONY UNDER SEAL AND NOTICE OF FILING REDACTED AND/OR NON-PROPRIETARY TESTIMONY

COME NOW MCImetro Access Transmission Services, LLC and MCI Worldcom Communications, Inc. (collectively referred to herein as "MCI") and hereby file this notice of filing the testimony which is attached hereto. MCI states that it is filing testimony containing proprietary testimony under seal and that it is filing testimony that has been redacted so as not to contain proprietary information, and/or which otherwise contains no proprietary information, for public access. Specifically, MCI is filing herewith the following testimony:

1. Attached hereto as *Exhibit A* and being filed under seal, is the testimony of Dr. Mark T. Bryant which contains proprietary/confidential information.

2. Attached hereto as *Exhibit B* and being filed for public access is the testimony of Dr. Mark T. Bryant with proprietary/confidential information redacted.

3. Attached hereto as *Exhibit C* and being filed under seal, is the testimony of James Webber which contains proprietary/confidential information.

4. Attached hereto as *Exhibit D* and being filed for public access is the testimony of James Webber with proprietary/confidential information redacted.

5. Attached hereto as *Exhibit E* is the testimony of Sherry Lichtenberg which does not contain proprietary and/or confidential information and which is being filed for public access.

Respectfully submitted this 12th day of January 2004.

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CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing document on the following by placing same in the United States Mail, postage prepaid and properly address on this the 20th day of January 2004.

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ALABAMA PUBLIC SERVICE COMMISSION

IN RE: Implementation of the Federal Communications Commission's Triennial Review Order – (Phase II – Local Switching For Mass Market Customers	))))	**DOCKET No. 29054**

DIRECT TESTIMONY OF DR. MARK T. BRYANT

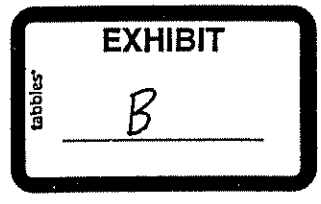
On Behalf Of

MCIMETRO ACCESS TRANSMISSION SERVICES, LLC

And

MCI WORLDCOM COMMUNICATIONS, INC.

January 20, 2004



I. IDENTIFICATION OF THE WITNESS AND SUMMARY OF CONCLUSIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark T. Bryant, and my business address is 4209 Park Hollow Court, Austin, Texas.

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE AS THEY PERTAIN TO THIS PROCEEDING.

A. I am self-employed as an economist providing consulting services in telecommunications regulatory and policy matters. I hold the Ph.D. degree from the University of Texas at Austin, and have over twenty years of experience in the telecommunications industry. Exhibit MTB-1 is a detailed description of my educational and professional qualifications.

Q. ON WHOSE BEHALF WAS THIS TESTIMONY PREPARED?

A. This testimony was prepared on behalf of MCImetro Access Transmission Services LLC, and MCI WORLDCOM Communications, Inc. (collectively, "MCI").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an economic analysis of the impairment issue with respect to mass market switching in the state of Alabama. I will discuss the economic framework and tools that should be applied to the analyses of triggers and the potential deployment of switch-based local exchange service by competitive local exchange providers ("CLECs"). I will also describe an analytic tool that can be used to provide estimates of the potential revenues and costs for a hypothetical switch-based CLEC considering entering local markets in

Alabama. This tool illustrates the economic impairment that would exist under most sets of assumptions if the unbundled network element platform ("UNE-P") were no longer available, as well as to demonstrate how much the forecasted results are driven by the assumptions used. UNE-P, or unbundled network element platform, is a combination of all unbundled network elements required, in conjunction with other functions supplied by the CLEC, to offer a complete local exchange service. At issue in this proceeding is whether unbundled switching will continue to be available for use by CLECs in individual markets. Without access to unbundled switching, the CLEC would no longer have access to UNE-P, and would be required to self-supply the local switching function in order to offer a complete local exchange service.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A. I recommend that the Commission adopt the incumbent local exchange carrier ("ILEC") wire center as the relevant market for analysis both of existing competitive switching supply (the "triggers" analysis) and of the potential for deployment of CLEC switching in Alabama. Economic theory and practice, as well as the FCC's guidance in its *Triennial Review Order*, all suggest that the wire center is the most appropriate starting point for an analysis of whether CLECs are impaired without access to unbundled switching for mass-market customers. Use of the wire center as the basic building block for analysis accomplishes the FCC's goals of a granular analysis that maximizes accuracy of results, subject to the constraints of practicality. *Report and Order and Order on*

Remand and Further Notice of Proposed Rulemaking, In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers (CC Docket No. 01-338); Implementation of the Local Competition Provisions of the Telecommunications Act of 1996 (CC Docket No. 96-989); Deployment of Wireline Services Offering Advanced Telecommunications Capability (CC Docket No. 98-147), FCC No. 03-36, (rel. Aug. 21, 2003) (hereinafter, "*Triennial Review Order*"), ¶ 130.

I also discuss an analysis of the economic factors that affect the potential deployment of switching capability by CLECs in the absence of the availability of UNE-P. This analysis illustrates that the profitability of CLECs offering local exchange services in the absence of unbundled switching is highly uncertain. A wide range of outcomes is possible, depending on the assumed value of a number of critical inputs to the analysis, including the market share achieved by the CLEC, the average expected time that a customer will remain a customer of the CLEC, the cost to the CLEC of handling "hot cut" migrations from the ILEC to the CLEC, and the average revenue per customer achieved by the CLEC, among others. Under the most optimistic assumptions, the analysis can illustrate that a CLEC may achieve profitability in some, but by no means all, wire centers in Alabama. Under less optimistic assumptions, the analysis can illustrate that no wire center in Alabama would be profitable for CLEC entry in the absence of UNE-P.

Because of this uncertainty, I urge the Commission to proceed cautiously both in the analysis of the actual deployment "triggers" and in the analysis of

potential deployment of CLEC switching capacity. As I discuss in more detail in the body of this testimony, an erroneous finding of no impairment with regard to access to unbundled switching in the mass market could have dire and irreversible consequences for Alabama consumers, while an erroneous finding of impairment would entail far less serious consequences, and would likely be a self-correcting error.

II. INTRODUCTION

A. Impairment Must Be Decided Within The Specific Context Of The Industry And The Established Goals Of The Telecommunications Act Of 1996

Q. WHAT IS YOUR UNDERSTANDING OF THE FOCUS OF THIS PROCEEDING?

A. The Commission must determine whether unbundled switching and, therefore, the so-called "UNE Platform" or "UNE-P" should continue to be available as a vehicle for competitors to offer local telephone service to residential and very small business customers ("mass-market customers") in Alabama. The Telecommunications Act of 1996 ("Act") provides certain guidelines for that determination, but it is up to the Commission to interpret those guidelines and determine whether the continued availability of unbundled switching in Alabama is consistent with the established goals of the Act and the specific context of the telecommunications industry in this state.

Q. PLEASE BRIEFLY DESCRIBE THE RELEVANT INDUSTRY CONTEXT.

A. The Commission must consider how best to achieve the Act's pro-competitive goals in the context of today's telecommunications industry. More and more, competing telecommunications providers are offering consumers *bundles* that combine local, long distance, and Internet services, rather than marketing these services individually. In Alabama, for example, MCI offers "The Neighborhood," a bundle of local and long distance calling, with optional calling features and Internet access, BellSouth offers "BellSouth Answers," a bundle of local and long distance calling, with optional calling features, Internet access, and wireless service, and Z-Tel offers "Z-Line Home Unlimited," a bundle of local and long distance calling with advanced calling features. And more and more, consumers are opting for "one-stop shopping," buying bundled services from a single provider. This is especially true in states where the ILEC is now able to offer interLATA long-distance services along with the local and intraLATA services for which it was previously the monopoly supplier. The increasing popularity of bundling—and the ILEC's ability to provide a complete bundle of services—makes viable local competition an essential precondition for preserving competition in the long distance and Internet services markets.

The strong consumer demand for bundled products puts a monopoly provider of local service in a good position to leverage its monopoly into other services. ILECs such as BellSouth stand poised to re-monopolize the competitive long-distance markets made possible by the divestiture of the former Bell System

and to extend the former Bell monopoly into newly emerging, and initially competitive, Internet services markets as well.

Supply-related considerations also encourage the creation of service bundles and provide the ILECs with potential monopoly power. For example, ILECs are adding broadband capability to the steadily increasing percentage of lines served via fiber feeder and Digital Loop Carrier ("DLC"). *****BEGIN PROPRIETARY***** *****END PROPRIETARY***** of all loops in Alabama currently are served via fiber feeder and DLC. At the ILECs' urging, the FCC in its *Triennial Review Order* eliminated any requirement under Section 251 of the Act for incumbents to provide competitors with unbundled access to the newly added capabilities of their fiber-fed loops. *Triennial Review Order* ¶ 213. This strategic management of technology allows ILECs to bundle narrowband and broadband services for the millions of customers served over fiber-fed loops in a manner that competitors cannot readily replicate.

This is no accident. ILECs are well aware that customers who obtain their broadband Internet access and their local service from a single provider are more "sticky"—*i.e.*, they are less likely to switch carriers. For example, SBC announced recently that:

- "Adding long distance to an access line reduces the company's churn rate by 9 percent.
- "Churn drops by 61 percent when a DSL line is added to an SBC bundle.

- "Together, long distance and DSL reduce churn by 73 percent."

SBC press release, "SBC Communications Provides Progress Report On Major Growth Strategies, Outlines Broad Service and Cost Initiatives," November 13, 2003. Thus, the inability to match an ILEC's bundle of broadband and narrowband services puts CLECs at a severe disadvantage not only as potential providers of broadband service, but also as competitors for basic voice-grade local service.

Moreover, the ILEC strategy targets less densely populated suburban and rural areas in which it is particularly difficult for CLECs to find or build alternatives to the ILEC network. SBC touted Project Pronto as extending its broadband services to customers beyond the reach of traditional DSL-over-copper solutions, typically, customers located more than 18,000 feet from the central office. (SBC Investor Briefing No. 211, October 18, 1999). There is no simple, inexpensive alternative for competitors to deliver high-quality, ubiquitous broadband service to such customers without using the ILECs' fiber-fed loops. Hence, the ILECs' broadband-over-fiber strategy jeopardizes rural customers' right to a meaningful choice of service providers.

B. State Impairment Decisions Must Also Be Meaningful within the Context of the Triennial Review Order*'s National Findings concerning Mass-Market Switching*

Q. WHAT NATIONAL FINDING OR FINDINGS DID THE FCC MAKE WITH RESPECT TO UNBUNDLED SWITCHING IN ITS *TRIENNIAL REVIEW ORDER*?

A. The FCC found on a national level that requesting carriers are impaired without access to unbundled local switching when serving mass market customers. *Triennial Review Order* ¶ 419.

Q. WHICH END-USER CUSTOMERS DID THE FCC INCLUDE UNDER THE HEADING OF MASS-MARKET CUSTOMERS?

A. The FCC has defined mass-market customers to include all residential customers as well as very small business customers. *Triennial Review Order* ¶ 127. The FCC did not identify a specific cutoff for the size of businesses considered to be part of the mass market; however, it did provide some guidance on this point. I will discuss this matter further below, in the section of my testimony that addresses market definition issues.

Q. WHAT WAS THE BASIS FOR THE FCC'S NATIONAL FINDING OF IMPAIRMENT FOR MASS-MARKET SWITCHING?

A. The FCC identified a number of factors that contribute to CLEC impairment without access to unbundled local switching. These factors include the difficulty faced by CLECs in transitioning customers from UNE-P based service to UNE-L based service:

> Inherent difficulties arise from the incumbent LEC hot cut process for transferring DS0 loops, typically used to serve mass market customers, to competing carriers' switches. These hurdles include increased costs due to non-recurring charges and high customer churn rates, service disruptions, and incumbent LECs' inability to handle a sufficient volume of hot cuts. Accordingly, based on those barriers, we make a national finding that competitive carriers providing service to mass market customers are impaired without unbundled access to local circuit switching.

Triennial Review Order ¶ 422. The FCC also noted that other operational issues, such as delays in ILEC provisioning of loops and collocation facilities or difficulties in obtaining cross-connects, as well as economic issues such as the relationship between revenues and the cost of obtaining unbundled network elements and the cost of overcoming operational difficulties, may affect the potential deployment of CLEC switches to serve mass market customers. *Triennial Review Order* ¶¶ 456-458.

C. The Commission's Tasks

Q. WHAT DECISIONS MUST THE COMMISSION MAKE IN THIS PROCEEDING?

A. The Commission must conduct a market-by-market investigation into whether barriers to entry "are likely to make entry into a market uneconomic." *Triennial Review Order* ¶ 84. As I noted above, the FCC made a national finding that CLECs are impaired without unbundled access to ILEC local switching to serve mass-market customers. The Commission must consider detailed evidence at a more granular level to determine if this finding is overcome in some markets in Alabama.

Q. PLEASE DESCRIBE THE PROCESS THE COMMISSION SHOULD FOLLOW IN REACHING THESE DECISIONS.

A. The first step in the analytical process, logically (although it need not be procedurally), is to define the markets in which the Commission will consider evidence of impairment on a "granular basis to each identifiable market." *Triennial Review Order* ¶ 495.

I recommend that the Commission adopt a market definition that permits the most unambiguous and accurate answer to the question of whether CLECs are impaired without access to unbundled switching in a given market. Implicitly, therefore, the market definition and every step of the subsequent analysis should allow the Commission to assess whether there is evidence that clearly demonstrates that the basis for the national finding of impairment does not apply in a specific defined market.

Once the Commission has defined the relevant markets, it must then "identify where competing carriers are not impaired without unbundled switching, pursuant to the triggers and analysis of competitors' potential to deploy." *Triennial Review Order* ¶ 473. Both the "trigger" analysis and the analysis of potential deployment apply on a market-by-market basis, and the FCC has specified that states must use the same market definition in conducting both analyses. *Id.* ¶ 495. Hence, the task before the Commission in this phase is to determine what market definition is most appropriate, given that the same definition will be used to conduct both "trigger" and potential deployment analyses.

1. Analysis of Triggers

Q. PLEASE DESCRIBE THE FCC'S REQUIREMENT FOR ANALYSIS OF "TRIGGERS."

A. The FCC found actual marketplace entry to be the most compelling evidence of the lack of impairment. *Triennial Review Order* ¶ 498. This was so for two reasons: (1) where significant competition already existed in a particular market, customers already have a real choice among competitors, and (2) the existence of multiple competitors actually providing service in a market demonstrates that other competitors also are likely able to enter the market. Therefore, the FCC established two actual marketplace entry "triggers" that could constitute evidence of lack of impairment in a particular market: one relating to the number of carriers that self-deploy switches to serve the mass market, and the other relating to the number of carriers that provide wholesale switching to other carriers for use to serve the mass market. The trigger is reached in a particular market if there are at least three carriers self-deploying switching or two carriers providing wholesale switching. *Id.*, ¶¶ 501, 504. In each case, a carrier only counts toward the trigger in a particular market if that carrier is unaffiliated with the incumbent; carriers affiliated with one another, but not the incumbent, only count as a single carrier toward satisfying the pertinent trigger. *Id.*, ¶ 499. CMRS (wireless) carriers do not count toward either trigger. *Id.*, n.1549.

Q. WHAT IS THE PURPOSE OF THE TRIGGER ANALYSIS?

A. The FCC prescribed an analysis of triggers to provide "bright-line rules" that "can avoid the delays caused by protracted proceedings and can minimize

administrative burdens." *Triennial Review Order* ¶ 498. The most reasonable interpretation of this objective is that triggers are intended to deal with the "no brainer" cases in which it is virtually certain that the national finding of impairment does not apply to a particular local market because the customers in the market already have significant alternatives and other competitors can readily enter.

But, the trigger analysis only makes sense in a rationally defined market. If a market is defined too large, a commission might (if a carrier were not required to serve a geographically dispersed customer base to qualify as a trigger) find no impairment even where many customers have no current choice of alternative providers and it is not certain new competitors can enter. If, for example, a market is defined to include both Birmingham and Talladega, the presence of CLEC collocations in Birmingham could lead to a finding of non-impairment in Talladega even though customers in Talladega currently have fewer if any choices among different providers. The ILECs may say that customers in Talladega will in the future have a choice of different providers. But that is a question of potential deployment that cannot be answered by a bright line inquiry based on the triggers. As will be discussed further below, it certainly is not clear that in the future customers in Talladega will have a choice just because customers in Birmingham have such a choice. In general, these sorts of questions are the subject matter of the economics of market definition, and the FCC delegated the task of market definition for the state of Alabama to the Commission. *Id.* ¶ 495.

Q. HOW DOES YOUR TESTIMONY ADDRESS THE PROPER MARKET DEFINITION FOR A TRIGGER ANALYSIS?

A. Because the FCC requires that the same delineation of the state into markets must be used for both the trigger analysis and the analysis of potential deployment, *Triennial Review Order* ¶ 495, I have considered both purposes in the market definition section below. Market definition is crucial to the outcome of the Commission's trigger analysis; if the market is not defined correctly, the trigger analysis is likely to produce an incorrect result.

For instance, if the FCC had determined that each state constitutes an appropriate market, it is likely that many states would have three retail CLECs using their own switches somewhere in the state, and the retail trigger would arguably be satisfied (again, if there were no requirement that the potential triggering carrier's customer base be geographically dispersed) throughout the state even though this would say nothing about whether most customers had alternatives or were likely to do so. For the reasons discussed at some length in my Market Definition section, defining the entire state as a market is an approach that clearly would not make sense, and the FCC correctly required that state commissions conduct a market-by-market analysis at a more granular level. *Id.*

Q. WHAT ARE THE CONSEQUENCES OF THE TWO POSSIBLE OUTCOMES OF THE COMMISSION'S DECISION REGARDING SATISFACTION OF THE TRIGGERS IN A GIVEN MARKET?

A. When considering evidence as to whether the triggers are satisfied in a particular market, the Commission should bear in mind the consequences of the two

alternative outcomes. If the Commission finds three qualifying self-provisioning CLECs in a market, suitably defined, and finds that the CLECs serve a sufficient number of customers in the market (as well as meeting certain other trigger criteria), a finding of no impairment is required, and UNE-P competition is terminated. In areas within the market in which self-provisioning CLECs are competing, existing UNE-P customers will then have the choice of migrating to one of these CLECs (or another CLEC that enters) or migrating back to the ILEC.

Customers in other areas within the market may end up with no alternative. If existing self-provisioning CLECs do not already serve the entire market, as defined, they may be unable, for whatever reason, to expand, and other CLECs may not share the Commission's conclusion that they can self-provision facilities to compete with the ILEC without access to the ILEC's local switching UNE. In this case, UNE-P competition will have made a false start, and customers will have to return to the ILEC.

In contrast, if the Commission's trigger investigation fails to reach a finding of no impairment, the consequence is simply that the investigation must proceed to the more detailed analysis of potential deployment, as called for in the *Triennial Review Order*. This more detailed analysis affords the Commission a better chance of being certain that a finding of no impairment will truly be in the interest of Alabama consumers, while at the same time providing ample opportunity to find no impairment if none truly exists. Hence, there is little downside—and a substantial upside—to a decision that the triggers do not justify a finding of no impairment.

For all of these reasons, I urge the Commission to conduct any trigger analyses in a manner that errs on the side of caution in protecting the interests of Alabama consumers. Any decision to overturn the national finding of impairment for mass market switching based on triggers should rest on incontrovertible evidence that competitive carriers are today able to offer Alabama's residential and small business customers competitive choices, even without access to UNE switching.

2. Analysis of Potential Deployment

Q. PLEASE DESCRIBE THE ANALYSIS REQUIRED TO EVALUATE THE PROSPECT OF POTENTIAL DEPLOYMENT.

A. In the absence of clear evidence of no impairment in the form of actual self-provisioning by CLECs that satisfies the "bright-line rule" of the FCC's prescribed trigger analysis, the Commission must proceed to the question of the market's "suitability for multiple, competitive supply." *Triennial Review Order* ¶ 506. This analysis is addressed to the definition of impairment in ¶ 84: "We find a requesting carrier to be impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic." This is essentially a test based on the Commission's prediction about a CLEC's investment decisions. Namely, will a CLEC decide to deploy facilities to substitute for UNE switching, after evaluation the potential for profit and the need to overcome the barriers to entry? Of course, these barriers are not just economic barriers. Operational barriers pose a threshold test of whether UNE-L

competition is feasible, and that test is addressed in the accompanying testimony of James Webber and Sherry Lichtenberg. These operational barriers also affect the economic analysis. Even if a CLEC determines that operational barriers are not insurmountable in and of themselves, the CLEC must take account of the expected cost and extra risk associated with overcoming these barriers in making a decision of whether to enter. The economic analysis below very conservatively assumes no risk and cost in overcoming these barriers.

Q. PLEASE DESCRIBE THE CONSEQUENCE OF THE TWO POSSIBLE OUTCOMES OF THE ANALYSIS OF POTENTIAL DEPLOYMENT.

A. In any given market, the Commission could make a finding of no impairment, or could find that the evidence presented is insufficient to overcome the FCC's national finding of impairment. In the event of a finding of no impairment, UNE-P competition will be terminated, and all consumers currently served by UNE-P CLECs will be forced to make a change in their telephone service: either switching back to the ILEC, switching to a UNE-L CLEC, or switching to their existing CLEC's new UNE-L facilities. If the Commission's finding of no impairment is incorrect, the customer's only option will be to switch back to the ILEC. On the other hand, if the FCC's national finding of impairment is not overcome by the evidence of potential deployment in a particular market, the ILECs will still have additional opportunities to demonstrate no impairment. They can show the Commission that the existing impairment could be overcome by some form of "rolling access" to unbundled local switching for a limited period. And if new evidence shows either potential or actual deployment, they

can come back to the Commission and make their case again. Ultimately, a finding of continued impairment maintains the status quo until new, more compelling evidence is presented.

I expect that with the passage of time, existing barriers to entry will diminish in importance to the point that the evidence will confirm either that the triggers have been met or that potential deployment is likely. Nonetheless, there may be some markets for which unbundled switching will be essential to competitive entry for many years to come.

D. Decision Criteria

Q. WHAT CRITERIA SHOULD THE COMMISSION APPLY WHEN REACHING DECISIONS IN THIS PROCEEDING?

A. Although the decisions the Commission must reach in this proceeding are clear – whether CLECs impaired without access to unbundled switching to serve mass-market customers – the Commission must exercise its judgment as to the weight given to conflicting evidence and analytical methods. As I will show in my analysis below, the evidence on which the Commission must ultimately rely will demonstrate that there is significant uncertainty as whether the CLECs will be able to survive in most markets as switched-based providers of service in the mass market.

In this circumstance, the Commission should consider the consequences of alternatives when assigning weight to the evidence supporting the alternative decisions. As discussed above, the consequences of a finding of no impairment are very different from the consequences of the alternative, both at the stage of

trigger analysis and in the analysis of potential deployment. A finding of no impairment, at whatever stage of the analysis, is essentially irreversible and initiates a process of wrenching change in the local exchange market. A decision that the available evidence does not overcome the national finding of continued impairment is a provisional finding at whatever stage of analysis it is made.

Q. IN WHAT SENSE IS A FINDING OF CONTINUED IMPAIRMENT "PROVISIONAL?"

A. Whenever the Commission determines that the available evidence does not overcome the national finding of continued impairment, that determination is always subject to reconsideration. If the Commission finds that the triggers are not satisfied in a particular market, the Commission must reconsider the implied *provisional* finding of continued impairment when it examines evidence of potential deployment in that market. *Triennial Review Order* ¶ 506. If the Commission determines that evidence regarding potential deployment does not overcome the national finding of continued impairment, that *provisional* decision will be reconsidered in the context of any proposals to overcome existing impairment by rolling access to unbundled local switching for a limited time period. *Id.* ¶ 521. If the Commission determines that no proposal for limited "rolling access" suffices to overcome existing impairment in a particular market, that *provisional* decision is always subject to reconsideration on the basis of new evidence. *Id.* ¶ 526.

Indeed, insofar as existing barriers to entry diminish in importance, I expect that the increasing provision of service via UNE-L will naturally create a

body of evidence supporting a finding of no impairment in a growing number of markets. A determination that the evidence for a particular market does not yet overcome the national finding of continued impairment is always provisional in the sense that the Commission can always revisit the state of evidence in that market and make a finding of no impairment as soon the level of actual or potential facilities-based competition in that market justifies such a finding.

Q. IN WHAT SENSE IS A FINDING OF NO IMPAIRMENT IRREVERSIBLE?

A. A finding of no impairment will initiate a period of substantial changes in the market, both for consumers and for providers. CLECs that cannot justify using their own scarce capital resources or cannot secure outside capital sources to invest in self-provisioned switching will have to go out of business, or change their business plans and focus on other parts of the markets, *e.g.*, serving enterprise customers. Consumers will be left with few or no alternatives to the ILECs, until and unless CLECs invest in switching. Although it is conceivable that the CLECs could reenter the market if technology changes to improve the prospect of earning profits, this may not happen for some time. Furthermore, once a CLEC exits the market, it will face a significant new barrier to entry – the cost of establishing a brand name and acquainting a new generation of customers with a competitive local telecommunications market.

Q. IS IT APPROPRIATE FOR THE COMMISSION TO CONSIDER THE IRREVERSIBLE CHARACTER OF A FINDING OF NO IMPAIRMENT AND THE PROVISIONAL CHARACTER OF A FINDING THAT THE

EVIDENCE DOES NOT YET OVERCOME THE NATIONAL FINDING OF CONTINUED IMPAIRMENT?

A. Yes, I believe it would be a grave error for the Commission not to consider these implications of its decisions. In particular, the Commission should recognize, and attempt to minimize, the consequences of the two kinds of decision-making errors that are possible in this proceeding.

First, the Commission could determine that CLECs are not impaired without access to unbundled switching when, in fact, they are impaired. (This would constitute what statisticians call a "Type I" error.) As I noted above, such a decision would do irreversible harm to the prospects for local exchange competition in Alabama and would therefore deprive mass-market consumers in Alabama of the benefits of such competition. Moreover, with the increasing prevalence of bundling, any decision that impedes local exchange competition will have spillover effects in the long-distance market. Long distance carriers that are unable to offer a bundled local/long-distance product will find it difficult to survive in the marketplace. This could lead to an outcome where there are few or no alternative to the ILEC for long distance and local service. Alabama consumers would lose the benefits of the long-distance competition that they have enjoyed for many years.

Second, the Commission could judge that CLECs are impaired when, in fact, they are not. (This would constitute what statisticians call a "Type II" error.) As I explained above, there is a good chance that such an error would be self-correcting. If CLECs are not impaired without access to UNE switching, I would

expect more CLECs to self-provision switching in the relatively near future. Thus, for any particular market definition, the number of self-provisioning carriers will increase until the three-carrier trigger is met. The incumbent would certainly bring this fact to the Commission's attention at the first available opportunity in one of the follow-on trigger reviews.

Decision theorists use a "loss function" to capture the perceived cost of each type of error. The loss function quantifies the cost, in terms of lost societal (both consumer and producer) welfare, incurred for a given regulatory action and a given set of facts about CLECs' true ability to enter without access to unbundled switching. Because a false finding of no impairment would cause irrevocable harm, whereas a false finding of impairment has only temporary consequences, the cost to society of the former (Type I) error is far greater than the cost of the latter error.

There are many cases where the modeling proves unambiguously that self-provisioning of switching by the CLECs is unprofitable and will remain so for the foreseeable future. In this case, there is no need to introduce a complicated decision rule; the CLECs are certainly impaired. Where the ability of CLECs to serve mass market consumers without access to unbundled switching is ambiguous, however, the Commission should makes its decision in a way that minimizes the expected consequences to Alabama consumers and the Alabama economy by erring on the side of caution, and applying the strictest possible standard before making a finding of no impairment in any Alabama market.

Q. YOU STATED ABOVE THAT GROWTH IN UNE-L BASED SERVICE WOULD NATURALLY PROVIDE GROWING EVIDENCE OF NO IMPAIRMENT AS EXISTING BARRIERS DIMINISH IN IMPORTANCE. IS IT POSSIBLE THAT UNDERPRICED ACCESS TO UNE-P LEAVES NO INCENTIVE FOR CLECS TO PROVIDE SERVICE VIA UNE-L?

A. No, there are several reasons to believe this is not the case. The CLECs are new entrants into a market that has been monopolized for a century or more. They have much to gain by limiting their dependence upon the incumbent. Eliminating dependence on ILEC facilities will allow the CLECs to better differentiate their services and improve their appeal to customers, without having to cut prices to the bone. Moreover, if the systems are in place to handle hot cuts and other interfaces between the CLEC and ILEC, the CLECs will have more control over the quality of service that they can offer their customers, and be able to offer redundancy to the ILECs' facilities. This factor has been a major factor in stimulating demand for the CLECs' transport services, and led to significant investment in facilities, even though leasing was still available as an option.

Q. HOW IS YOUR ANALYSIS OF THE TYPES OF POTENTIAL ERRORS IN FINDING NO IMPAIRMENT WITH REGARD TO MASS-MARKET SWITCHING AFFECTED BY THE DESIRABILITY OF FACILITIES-BASED COMPETITION?

A. The ILECs' response to these, and other concerns, will no doubt be a repeat of the mantra of encouraging "real" (*i.e.*, facilities-based) competition. As an

economist, I recognize the benefits of facilities-based competition, but question the merits of any attempt to force a "one-size-fits-all" approach to competition.

The Act sets a framework for local competition and provides for three entry vehicles: (1) total service resale priced at the incumbent's retail prices less an avoided cost discount; (2) unbundled network elements (including UNE-P) priced at cost, which the FCC has defined as forward-looking economic cost; and (3) facilities-based entry. 47 U.S.C. § 251(c). The Act does not give preference to any of these forms of entry, and neither should the Commission.

Certainly, there is no economic basis for such a preference. In non-regulated competitive markets, there are many different viable firm structures, ranging from firms that specialize in retailing (pure resellers) to firms that own and control every step of the process from the extraction of raw materials to the sale of finished goods and services. There is no single optimal level of what economists call vertical integration.

The ILECs themselves have changed their levels of vertical integration over time. For example, pre-divestiture, the Bell System was a vertically integrated amalgam of a research and development arm (Bell Labs), an equipment manufacturer (Western Electric), facilities-based local service providers (the various local operating companies, which were spun off as the Regional Bell Operating Companies, or RBOCs) and a facilities-based long distance provider (AT&T Long Lines). Post-divestiture, the RBOCs have become resellers of other manufacturers' equipment, have spun off their own jointly owned and operated research and development arm (the former BellCore, now Telcordia) and have

chosen to re-enter the long-distance business by leasing facilities from other carriers.

The last example is particularly instructive. The RBOCs are *not* building their own nationwide long distance networks; instead, they are relying on renting others' networks out of region on competitive terms. Yet, in complete contrast to their advocacy concerning local entry via UNE-P, the RBOCs have vigorously argued before state and federal regulators that their entry into the long-distance business will deliver significant consumer benefits, even though they rely extensively on others' facilities.

The RBOCs are able to compete fully in the long-distance retail market without building their own nationwide networks because, prior to their entry, the long-distance *wholesale* market was already well-established. The Operations Support Systems ("OSS") were already designed to accommodate multiple carriers using the same networks, and price competition had driven wholesale prices well below historic/embedded costs.

CLECs should have the same opportunity to procure network inputs at competitive prices, as well. But, in stark contrast to the long-distance wholesale market, where there are multiple carriers from which the RBOCs can obtain capacity, CLECs generally have no choice but to lease facilities from the former local monopolist in each area. The ILECs have little incentive to offer potential competitors favorable wholesale prices. As I demonstrate further in the following sections, absent a continued requirement to make UNE-P available at prices based

on forward-looking economic cost, the ILECs can and undoubtedly will exploit their monopoly leverage over local networks to forestall competitive entry.

E. Steps in Analysis and Organization of Testimony

Q. PLEASE DESCRIBE THE STEPS FOLLOWED IN YOUR ANALYSIS.

A. My analysis follows four steps. First, I define markets on the basis of principles that apply to both trigger analysis and the analysis of potential deployment. This market definition provides the necessary foundation for the Commission's review of evidence purporting to show that triggers are met in certain markets.

The remaining three steps of my analysis relate to the potential deployment question that the Commission must address for markets in which triggers are not met. In the second step, I quantify the various costs that a CLEC would consider in evaluating the feasibility of deploying facilities to provide UNE-L based services. Then, I quantify revenues that a CLEC could expect to receive after deploying facilities to provide UNE-L based service. Finally, I consider the results of my calculations in a way that recognizes the uncertainty associated with many of the inputs necessary for the calculations.

Each of these steps is discussed below, and an electronic copy of the analysis tool on which I rely is provided as Exhibit MTB-2. In the final section, I describe the conclusions I draw from the reported results.

III. MARKET DEFINITION

Q. YOU INDICATED ABOVE THAT THE MARKET DEFINITION SHOULD PERMIT THE MOST UNAMBIGUOUS AND ACCURATE ANSWER TO THE QUESTION "ARE CLECS IMPAIRED WITHOUT ACCESS TO

UNBUNDLED SWITCHING IN THIS MARKET?" PLEASE EXPLAIN IN MORE DETAIL WHAT YOU MEANT BY THAT STATEMENT.

A. The FCC has observed that "[i]t is fundamental to our general impairment analysis to consider whether alternative facilities deployment shows a lack of impairment in serving a particular market." *Triennial Review Order* n.1536. This means that the markets as defined should be sufficiently uniform that evidence of (actual or potential) facilities-based competition in any part of a given market implies the ability to provide service to all (or nearly all) customers in that market without access to unbundled switching.

Q. HOW DOES THE FCC REQUIRE MARKETS TO BE DEFINED FOR THE PURPOSE OF DETERMINING IMPAIRMENT?

A. At the outset, it is essential to recognize that, "because we measure alternative 'switching' in a given market, not switches located in that market, the physical location of the switch is not necessarily relevant to defining the geographic market. For example, a switch located in Rhode Island could satisfy the switching trigger in Massachusetts if it is serving customers in the relevant market in Massachusetts." *Triennial Review Order* n.1536.

The FCC clearly intends for state commissions to conduct a more granular impairment analysis than was possible at the national level, and market definition is crucial to that analysis. *Triennial Review Order* ¶ 495.

Specifically, the *Order* calls for the Commission to conduct its investigation "on the most accurate level possible, while still preserving administrative practicality." *Id.* ¶ 130. Accuracy is essential to carrying out the

pro-competitive purposes of the Act. If markets are not defined correctly, the Commission could mistakenly find no impairment where, in fact, customers are left without competitive alternatives; or, a faulty market definition could lead the Commission to find impairment where none exists.

Q. HAS THE FCC ESTABLISHED ANY GUIDELINES OR PARAMETERS FOR CHOOSING AN ACCURATE AND ADMINISTRABLE MARKET DEFINITION TO BE USED IN TRIGGER AND POTENTIAL DEPLOYMENT ANALYSES?

A. Yes. The rules that the FCC adopted in its *Triennial Review Order* specify that:

> A state commission shall define the markets in which it will evaluate impairment by determining the relevant geographic area to include in each market. In defining markets, a state commission shall take into consideration the locations of mass market customers actually being served (if any) by competitors, the variation in factors affecting competitors' ability to serve each group of customers, and competitors' ability to target and serve specific markets profitably and efficiently using currently available technologies. A state commission shall not define the relevant geographic area as the entire state.

47 C.F.R. § 51.319(d)(2)(i). The *Order* also presents examples of the factors that may vary geographically, such as "how the cost of serving customers varies according to the size of the wire center and the location of the wire center, and the variations in the capabilities of wire centers to provide adequate collocation space and handle large number of hot cuts." *Triennial Review Order* ¶ 496. Significantly, these criteria for market definition are not limited to variations in potential profitability that might be captured, at least in part, by grouping together wire centers that fall into the same UNE and/or retail rate bands. Instead, consistent with the

operational basis for the FCC's national finding of impairment for mass-market switching, the FCC points to many factors that vary among wire centers: (1) locations of customers actually being served; (2) variations in cost between wire centers; (3) variations in capability to provide collocation space; and (4) variations in the ability of wire centers to handle large numbers of hot cuts. Because each of these factors varies among wire centers, a market definition bigger than the wire center will be inaccurate. The ongoing ability of the ILECs to perform hot cuts as mass-market customers change carriers (only one or a handful of lines per location, but potentially and collectively hundreds of lines each day in a given wire center), for example, is critical to the success of switch-based competition and must be considered at all phases of the impairment analysis, beginning with market definition. Moreover, the FCC states that, "where switch providers . . .are identified as currently serving, or capable of serving, only part of the market, the state commission may choose to consider defining that portion of the market as a separate market for purposes of its analysis," *Triennial Review Order* ¶ 499 n.1552, again emphasizing the importance the FCC placed on granularity.

Q. DOES ECONOMIC THEORY PROVIDE ANY GUIDANCE WITH RESPECT TO MARKET DEFINITION?

A. Yes. There is a body of economic analysis that applies to the question of defining markets. Much of the economic literature on market definition has focused on facilitating the assessment of market power in merger and antitrust proceedings.

The FCC noted in its *Triennial Review Order* that the market power question is somewhat different from the impairment question before the Commission in this proceeding. *Id.* ¶¶ 74, 109. Nonetheless, the FCC also acknowledged that the market definition literature developed in the context of merger and antitrust analyses provides helpful guidance for market definition in the impairment context. *Id.* n.439. Hence, as I describe in more detail in a following section, I have taken this economic literature into account in developing my recommended market definition.

The essential economic criterion for whether a product belongs in a relevant market is whether the product can serve as an alternative to consumers in that market. Thus, for example, an apartment in Birmingham is not in the same geographic market as an apartment in Talladega, because the Birmingham apartment does not serve as a meaningful alternative for Talladega consumers.

Q. HOW HAVE YOU APPLIED THE GUIDANCE IN THE *TRIENNIAL REVIEW ORDER* AND ECONOMIC THEORY CONCERNING MARKET DEFINITION?

A. This section sets out in more detail the economic principles that should be followed in defining markets for the purposes of the impairment analysis, which are consistent with those prescribed by the *Order*, and concludes that criteria of "accuracy" as well as "practicality" argue for the Commission to begin its analysis with the presumption that wire centers establish the appropriate level of granularity. ILEC wire center boundaries are the most natural geographic boundaries for purposes of defining markets for several reasons. First, the costs of

providing service vary widely from one wire center to another and it is not possible draw conclusions about one wire center from an analysis of another wire center. Second, once a CLEC is serving some customers in a wire center, it will face relatively lower cost of serving other customers in the same wire center, compared to the cost of entering a new wire center market. Third, it is administratively feasible to administer the requirements of the *Order* on a wire center basis, because data on CLEC activity, including collocation, and other cost information is available on this basis. I have demonstrated this point with the impairment analysis tool.

A. Market Definition Must Be Applied in Two Different Contexts

Q. FOR WHAT PURPOSES MUST THE COMMISSION DEFINE SPECIFIC MARKETS?

A. For the local switching UNE, the FCC asks the Commission "to assess impairment in the mass market on a market-by-market basis." *Triennial Review Order* ¶ 493. Thus the Commission's market definition task is to divide the mass market customers of the state into separate "markets."

This set of "markets" that the Commission will define provides the starting point for two types of investigation: (1) the identification of qualifying market participants for the wholesale and self-provisioning "triggers" and (2) the analysis of "potential deployment." As I mentioned above, the Commission must use the same set of "markets" for both of these investigations (*id.* ¶ 495), so the markets being defined must be appropriate for the purely structural trigger

analysis as well as for the analysis of entry decisions and business plans required to reach conclusions on potential deployment.

Q. PLEASE ELABORATE ON THE FIRST USE OF THE MARKET DEFINITION IN THIS PROCEEDING.

A. The separate markets defined by the Commission will first be used to identify market participants that may count toward satisfaction of self-provisioning and wholesale triggers. The *Order*'s trigger analysis is intended to provide "bright-line rules" that "can avoid the delays caused by protracted proceedings and can minimize administrative burdens." *Triennial Review* Order ¶ 498. The correct functioning of these "bright-line rules" depends crucially on the markets the Commission defines for use in "market-by-market" analysis.

In particular, for the trigger analysis to correctly serve its function, markets must be defined so that "[i]f the triggers are satisfied, the states need not undertake any further inquiry, because no impairment should exist in that market." *Id.* ¶ 494. That is, markets must be defined so that if the triggers are satisfied and the Commission reaches a finding of no impairment for a market, customers in the market have real choice, and competitive carriers are not impaired in their ability to reach the customers in the defined market. Otherwise, as explained above, the triggers could be satisfied when customers have no alternative choice of providers and indeed where competitors are impaired. The FCC made clear the importance of firms serving as actual alternatives when it explained that existing firms can only be counted toward satisfaction of a trigger

if they are "currently offering and able to provide service, and likely to continue to do so." *Id.* ¶ 500.

The triggers merely identify whether CLECs in a market are clearly not impaired without access to the local switching UNE. Failure to meet the triggers results in further analysis of potential deployment.

As a result, the role of market definition in the trigger analysis should be to identify the scope of telecommunications services and locations for which a market participant's switching capacity clearly shows the absence of impairment because customers already have real alternatives. Market definition should ensure that a qualifying market participant provides an acceptable alternative to qualifying service provided at a geographic location that actually serves the customers in the market. The new entrant's service must be an acceptable substitute, and the location at which service is offered must encompass the areas in which the customers require service. Successful entry into a different market, where the entrant's offering is not a close substitute for service provided with the incumbent's local switching or where the entrant is unable to provide service to the customers, offers no such evidence of non-impairment. Only if the qualifying participant has succeeded in overcoming operational and economic barriers to entry into a properly defined market, which recognizes buyers' product and location substitution possibilities, can the Commission be confident that the new entrant offers evidence of no impairment in provision of the specified service at the specified location.

Q. PLEASE ELABORATE ON THE SECOND USE OF THE MARKET DEFINITIONS.

A. If the triggers are not satisfied in a market, analysis proceeds to the possibility of potential deployment to test whether barriers to entry without unbundled access to a network element are "likely to make entry into a market uneconomic," or whether the market in question is "suitable for 'multiple, competitive supply.'" *Triennial Review Order* ¶¶ 84, 506. This analysis, which is the central topic of my testimony, must also be conducted on a "market-by-market" basis, analyzing the same markets that are used in the trigger analysis. At this stage of the analysis, the Commission must consider any local switching capacity of market participants identified in the trigger analysis in concert with analysis of operational and economic barriers to entry. As with the triggers, it is critical that markets not be defined too broadly or the Commission will end up finding non-impairment in many areas in which competitors are in fact impaired, leaving customers with no choice among providers.

Q. IS YOUR RECOMMENDED APPROACH TO MARKET DEFINITION EQUALLY APPLICABLE TO BOTH THE WHOLESALE AND SELF-PROVISIONING TRIGGERS?

A. Yes. The same approach to market definition applies to evidence of no impairment presented with respect to wholesale and self-provided switching.

B. Market Definition Analysis Starts with a Specific Service or Product Offering in a Narrow Geographic Market and then Expands the Relevant Market to Incorporate Substitutes

Q. HOW DO ECONOMISTS TYPICALLY DEVELOP MARKET DEFINITIONS?

A. The process of defining a market invariably requires answering questions as to whether a particular product or location belongs in the market, or falls outside its boundaries. These questions are properly answered by considering the extent to which customers regard the various products and locations as substitutes or alternatives.

The normal way to begin the analysis is with a single firm's product, offered at a specified location and then to expand beyond this point to see if products from the expanded product set or geographic area serve as alternatives. Normally, the initial market definition of a specific location and product will turn out to be too small because buyers have acceptable alternatives, or substitutes, outside of the product and location. If buyers regard another firm's product, possibly offered at a different location, as an acceptable substitute, then the market definition should be expanded to include the other firm's product and the other location.

Q. IS THIS APPROACH TO MARKET DEFINITION APPLICABLE IN THE CONTEXT OF THE TRIGGER ANALYSIS REQUIRED BY THE FCC?

A. Absolutely. Although most economic analyses have developed market definitions in the context of calculating market shares or other measures of market

concentration, the conventional approach is also correct for the identification of competitive facilities qualifying for the trigger analysis prescribed in the *Order*. Market definition is a preliminary step in *any* structural analysis of markets, and the same analysis is implied for the identification of market participants to calculate indicia of concentration in a market, or to conduct a trigger analysis.

Moreover, this approach is consistent with the specific criteria the FCC provides for defining markets. The *Triennial Review Order* specifically requires state commissions "to define each geographic market on a granular level and direct[s] them to take into consideration the locations of customers actually being served by competitors, the variation in factors affecting competitors' ability to serve each group of customers and competitors' ability to target and serve specific markets economically and efficiently using currently available technologies." *Id.* n.1536.

Q. IS THE APPROACH YOU PROPOSE USED IN ANY OTHER REGULATORY CONTEXT?

Yes, the market definition approach I have presented is the same as the one used in the Horizontal Merger Guidelines ("HMG") of the U.S. Department of Justice and the Federal Trade Commission. The HMG states that "a market is defined as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future producer or seller of those products in that area likely would impose at least a 'small but significant and not

transitory' increase in price, assuming the terms of sale of all other products are held constant."

Although the FCC rejected certain applications of the HMG for purposes of an impairment analysis, the *Triennial Review Order* explicitly endorses the relevance of the HMG to the market definition that must underlie any impairment analysis: "We take this lesson of geographic granularity from the HMG without adopting the HMG wholesale." *Triennial Review Order* n.439. This makes sense because the HMG have authoritative status in industrial organization economics.

Q. HOW DO THE MERGER GUIDELINES APPROACH THE PRACTICAL ASPECTS OF DEFINING A MARKET?

A. The HMG describe an approach similar to the one I just described where they "begin with each product (narrowly defined) produced or sold by each merging firm" for the product dimension and "the location of each merging firm (or each plant of a multiplant firm)" for the geographic dimension. HMG 1.11 Product Market Definition General Standards and 1.21 Geographic Market Definition General Standards.

This initial tentative market definition is expanded by asking whether consumers regard other products or locations as close enough substitutes that a price increase in the narrowly and tentatively defined market would be met by consumers switching to other products or locations. The notion of "close enough" substitutes is given precision by asking whether a "small but significant and nontransitory" price increase in the narrowly and tentatively defined market would be met by a strong enough substitution response by consumers to make the

price increase unprofitable, if it were implemented by a hypothetical monopoly provider controlling all of the products and locations in the tentatively defined market. The tentative market definition is too narrow if it fails to incorporate substitutes that consumers regard as "close enough," as measured by consumers switching in response to a price increase. If a tentative market definition is found to be too narrow, the definition is expanded to incorporate the next best products or locations that consumers regard as "close enough" substitutes.

In short, the analysis of market definition under the HMG is essentially the same as the one that I have proposed. A CLEC serving a group of customers in a specific geographic area would not be counted as a participant in another geographic market if it was not now offering service in that market and it would not extend service to that market in response to a "small but significant nontransitory" price increase.

1. Product Markets and Geographic Markets for Local Telecommunications Services

Q. HOW DOES THE ECONOMISTS' VIEW OF MARKET DEFINITION APPLY TO LOCAL TELECOMMUNICATIONS SERVICES?

A. Applying the conventional market definition procedure described above to local telecommunications services begins with identifying the product and geographic starting point for a tentative market definition. In the present case, the starting point is the product and customer location that a requesting CLEC now serves with unbundled access to the incumbent's local switching network element, and for which we will seek evidence of no impairment in the form of actual or potential deployment of competitive switching capacity in the same market. "In

the same market" means that consumers must find the identified competitive offering to be an acceptable substitute for the offering possible with access to the local switching UNE.

The analysis then proceeds to expand these tentative product and geographic markets to include other products or locations that consumers will regard as "close enough" substitutes. The *Triennial Review Order* contains specific discussions of many possible substitutes and provides guidance for the Commission about the appropriateness of including each of these substitutes within the market definition.

Q. HOW SHOULD THE COMMISSION IDENTIFY THE PRODUCT OR PRODUCTS INCLUDED IN THE RELEVANT MARKET?

A. The Commission should identify the product or products included in the initial tentative market based on the *Order*'s discussion of qualifying services: in short, "those services that have been traditionally the exclusive or primary domain of the incumbent LECs." *Triennial Review Order* ¶ 135. As I will discuss below, it may be necessary to subdivide the ILECs' customers into two different markets, residential and business, even though most of the same products are sold to these two classes of customers. The reason is that price discrimination is enforced between the two market segments. In addition, the products are marketed and sold differently, and are serviced by different organizations within the telephone company's organization.

Q. BASED ON THE ABOVE DISCUSSION, WHAT PRODUCT MARKET DEFINITION DO YOU RECOMMEND FOR COMMISSION ADOPTION?

A. In the product market dimension, the Commission should include any alternative to the ILEC's local switching UNE that affords access to the incumbent's loops to provide local voice service, including vertical features and access service. This product definition excludes CMRS, fixed wireless and cable telephony, but includes packet switched local service when it meets the requirements of the Triennial Review Order's impairment analysis.

Q. DOES THE TRIENNIAL REVIEW ORDER DISCUSS WHETHER INTERMODAL PROVIDERS ARE IN THE SAME PRODUCT MARKET?

A. Yes, the *Order* states:

> As in the impairment triggers for high-capacity loops and dedicated transport, states also shall consider carriers that provide intermodal voice service using their own switch facilities (including packet and soft switches) that meet the requirements of these triggers and Part V above. ... In deciding whether to include intermodal alternatives for the purposes of these triggers, states should consider to what extent the services provided over these intermodal alternatives are comparable in cost, quality, and maturity to incumbent LEC services.

Triennial Review Order n.1549.

The *Order* further suggests that CMRS is not a close enough substitute to be included in the market, but packet switches providing voice services should be included, if they "meet the requirements" of the triggers and the *Order*'s Part V, Principles of Unbundling. *Id.* Fixed wireless has "not proven to be viable or deployable on a mass market scale," suggesting that it may not be a "close

enough" substitute to require expansion of the tentative market definition. *Id.* ¶ 310.

Cable telephony fails to serve the "crucial function" of affording access to the incumbent's loops (*id.* ¶ 439), and therefore "provides no evidence that competitors have successfully self-deployed switches as a means to access the incumbents' local loops, and have overcome the difficulties inherent in the hot cut process." *Id.* ¶ 440. Further, cable telephony's strategy is to "bypass the incumbent LECs' networks entirely." *Id.* ¶ 439. This strategy is only available to a single firm in any market because cable TV companies, due to "unique economic circumstances of first-mover advantages and scope economies, have access to customers that other competitive carriers lack." *Id.* ¶ 310. As a result, neither cable telephony nor CMRS "can be used as a means of accessing the incumbents' wireline voice-grade local loops. .... Accordingly, neither technology provides probative evidence of an entrant's ability to access the incumbent LEC's wireline voice-grade local loop and thereby self-deploy local circuit switches." *Id.* ¶ 446. Any competitive facilities that allow access to some local loops but not others clearly cannot be regarded as probative evidence of no impairment concerning those loops that cannot be reached by the competitive facilities.

Q. HOW DO YOU RECOMMEND THE COMMISSION DETERMINE THE RELEVANT GEOGRAPHIC MARKETS?

A. In the geographic dimension, it takes only a moment's reflection to recognize that consumers of qualifying telecommunications services will not accept any

substitutes that do not deliver service to the customer's premises. Because qualifying services provided to a location other than to a customer's own premises will not generally be a satisfactory substitute, expansion of the tentative market definition to include other locations is not appropriate; the "most accurate" level of granularity must address switching capability for particular customer premises. The relevant points at which qualifying services are provided, analogous to the HMG's "location of each plant" (HMG 1.21), are the Network Interface Devices ("NIDs") that comprise the physical point of interconnection between the incumbent and a customer. Thus, each NID or customer premises is a "location," or "plant," for purposes of defining initial tentative markets.

Fortunately, certain aggregations of consumers can be accomplished to achieve "administrative practicability," as I discuss below. Further, the Commission can respond to the FCC's concern that markets not be defined so narrowly as to preclude the realization of economies of scale and scope (*Triennial Review Order* ¶ 495) by requiring that each aggregation of customer locations must be economically and operationally "includable" in a serving area large enough to afford economies necessary to compete.

Q. WHAT IS THE SIGNIFICANCE OF THE LOCATION-SPECIFICITY OF THE DELIVERY OF TELECOMMUNICATIONS SERVICES?

A. This location-specificity of the delivery of services is one of the unique characteristics of markets for telecommunications services, and it is crucial to the task of defining markets in which the prescribed trigger analysis reflects evidence

of actual economic entry into relevant markets without access to the incumbent's local switching UNE.

The *Triennial Review Order* recognizes this location-specificity in several ways. For example, in defining the geographic markets for application of trigger analysis to enterprise loops, the *Order* requires a "customer-by-customer location basis." *Id.* n.1536. Although mass market customers are tied to their locations just as tightly as enterprise customers, the FCC observes that considerations of practicality will not permit a customer-by-customer analysis, for at least some mass market investigations. *Id.* ¶ 309.

I demonstrate below that it is possible to aggregate mass market customer locations in such a way (by wire center) as to preserve much of the accuracy of customer-by-customer analysis, while achieving a high degree of practicality. Identifying large groups of customers that are capable of being served using uniform technologies and techniques, but recognizing that those techniques must be applied to deliver service at the customer location, results in market definitions that remain "accurate" but achieve "administrative practicality."

Q. ARE THERE ANY SPECIFIC CONCLUSIONS THAT FOLLOW FROM THE RECOGNITION OF LOCATION-SPECIFICITY?

A. Yes. Recognizing that each customer comprises a unique geographic market would lead to a "market-by-market" analysis that recognizes that "an important function of the local circuit switch is as a means of accessing the local loop." *Triennial Review Order* ¶ 429. Or, "a crucial function of the incumbent's local circuit switch is to provide a means of accessing the local loop." *Id.* ¶ 439. The

crucial characteristic of loops is that they terminate in the customer's premises, which is the geographic location at which qualifying services are provided and the only geographic point at which customers will accept delivery of services.

A market definition that ignored location specificity would fly in the face of the entire foundation of antitrust and regulatory economics. It is nonsensical to ignore the costs and entry barriers faced by CLEC wishing to expand service to unique locations and define away these important cost differences by simply declaring a large group of customers to be in the same geographic market. The location is the market, and multiple locations cannot be aggregated without an analysis of the specific facts that govern supply conditions in the market.

2. Accuracy and Practicality

Q. FROM THIS "MOST ACCURATE" LEVEL OF GRANULARITY, WHAT IS REQUIRED TO ACHIEVE "ADMINISTRATIVE PRACTICALITY" (*TRIENNIAL REVIEW ORDER* ¶ 130)?

A. Market definition at the most accurate level of granularity, whether for application of the prescribed triggers or for analysis of potential deployment, would be conducted on a customer-by-customer basis, recognizing that customers will not generally accept a substitute for the incumbent's wireline service if that service is not delivered to the customer's premises. That is, the relevant geographic market for local telecommunications services is customer location specific. Nevertheless, subject to certain important limitations discussed below, it is possible to analyze customer-specific locations in large numbers, achieving practicality with little or no loss of accuracy.

Q. WHAT AGGREGATIONS OF CUSTOMER LOCATIONS MAKE SENSE FOR AN IMPAIRMENT ANALYSIS?

A. Impairment analysis for mass market switching must identify substitutes to the incumbent's local circuit switch "as a means of accessing the local loop." *Triennial Review Order* ¶ 429. Wire centers are the centers of outward-radiating ILEC loop facilities, and determine the point at which access to the incumbent's loops must occur. Because impairment regarding the local switching UNE is so closely related to access to the incumbent's loops, the wire center provides a natural unit of analysis. Insofar as an entrant in a particular wire center is not impaired in its ability to expand service to all customers served by loops in that wire center, it is reasonable to aggregate customers and consider impairment issues at the wire center level.

Q. WHAT LIMITATIONS MUST BE IMPOSED ON THE AGGREGATION OF CUSTOMER LOCATIONS TO THE WIRE CENTER LEVEL?

A. The crucial limitation is that a UNE-L CLEC's entry at a wire center must afford that CLEC the opportunity to expand to serve any customer in that wire center. The failure of this condition implies that aggregation of customers to the wire center level will introduce misleading evidence and lead the Commission to mistaken conclusions about impairment. The nature of this requirement is explained in the following quotation from a popular antitrust law text:

> "Competitors, supply substitution, and entry. (a) Expansion by immediate competitors.] The demand for Alpha Company's product is obviously affected by the ability of its direct competitors to deliver the same product. But if the others

are to limit Alpha's actions, they must be able to expand their production when Alpha increases its prices because consumers cannot turn to other suppliers if those suppliers are unable to expand their output." Antitrust Analysis: Problems, Text, and Cases, Fifth Edition, Phillip Areeda and Louis Kaplow, Copyright 1997 by the President and Fellows of Harvard College, page 570, ¶342

I will discuss below several specific conditions that can limit the ability of a CLEC in a particular wire center to serve certain customers in that wire center, but aggregating customers to the level of the wire center presumes the absence of one overarching limitation on the CLEC's ability to expand. That overarching limitation is the possibility that there are operational barriers to the CLEC's expansion. If a CLEC that has entered a particular wire center cannot adequately expand its operations in that wire center, due to the presence of operational barriers, then it is not reasonable to aggregate customers and consider the question of impairment at the wire center level.

Q. ARE THERE OTHER FACTORS THAT SUPPORT A MARKET DEFINITION AT THE WIRE-CENTER LEVEL?

A. Yes. In most cases, CLEC self-provisioning of local switching will require collocation at each wire center the CLEC intends to serve. In those cases in which all competitive facilities deployed are available to serve any loop in the wire centers in which they offer service, trigger analysis can proceed with the wire center as the geographic market definition. In such cases, analysis of the prescribed triggers can proceed at the wire-center level with little or no loss of accuracy.

For several reasons, the wire center also provides a natural unit of analysis for the investigation of potential deployment. First, because a portion of the costs of establishing service in a previously unserved wire center will be sunk costs, CLEC entry decisions will have to be justified at the wire center level. This justification will require the CLEC to compare the stream of net operating income projected for a wire center to the sunk cost that must be incurred to establish the collocation or other arrangements needed to offer service in the wire center. Further, various costs and revenues that must be considered in analysis of potential net operating revenue vary, sometimes dramatically, between wire centers. To mention only two: 1) potential revenue from serving a wire center will vary with the number of lines in the wire center and the profile of the typical customer at the wire center, and, 2) the cost of backhauling traffic from the wire center will vary with the wire center's proximity to other elements of the CLEC's network.

Q. IS IT MOST PRACTICAL TO CONDUCT IMPAIRMENT ANALYSIS AT THE WIRE-CENTER LEVEL?

A. Yes. For the analysis of triggers, the logical data to rely on initially – facilities in place in the incumbent's wire centers, capabilities of competitors' facilities, capacity available for expansion – are data that are available and most accurately interpreted at the wire center level. ILEC tariff data needed for the impairment analysis – UNE loop zones and retail rates – is also readily available on a wire center basis. Also, information on customer demographics can be obtained on a

wire center basis, either from the data collected for universal service models or from other public sources.

Q. IS IT IMPORTANT TO CONDUCT AN IMPAIRMENT ANALYSIS AT A LEVEL AS GRANULAR AS THE WIRE CENTER?

A. Yes. Because the CLEC's entry decision will be made at the wire-center level, examination of pertinent data at a higher level of aggregation will be less helpful at best, and very possibly misleading.

For example, it would be an error to conclude that entry is feasible in two wire centers because the present value of potential revenues net of operating costs in the two wire centers exceeds the sunk costs of entering the two wire centers. The two wire centers may be like a bucket of ice water and a bucket of boiling water, which, on average, are a comfortable temperature. The fact that entry is feasible in one wire center but not the other will not be revealed from examination of average or total costs for the two wire centers. If the Commission finds no impairment in both wire centers, the result will be that end users in one of the wire centers will lose the competitive alternatives that would be available to them if CLECs were to retain unbundled access to the incumbent's local circuit switch.

If the Commission conducted its trigger analyses under a market definition that lumps together more than one wire center, it would need criteria to determine whether competitive facilities satisfy the requirement of the trigger or not. The analysis would nevertheless be likely to result in error. The trigger analysis treats each qualifying competitive carrier as evidence that barriers to entry have been overcome and no impairment exists. In fact, in a collection of two wire centers, a

competitive switching provider that is offering service to customers in one wire center does not show absence of impairment in the other wire center. As suggested above, analysis of potential deployment in the wire center, which has not experienced actual deployment, may show that competitive entry without access to the local switching UNE is extremely unlikely because of the cost and revenue characteristics of the wire center. A finding of no impairment in such a wire center, based on actual deployment in another wire center, would result in customers in that wire center losing competitive alternatives based on availability of the local switching UNE, with no prospect of switch-based competitors actually overcoming operational and economic barriers to entry. I will show later in this testimony that two wire centers located in the same exchange area may have dramatically different results in terms of the potential for profitable CLEC entry.

Q. SOME WOULD ARGUE THAT MANY OF THE CLEC'S COSTS, SUCH AS OPERATIONS SUPPORT SYSTEMS, SWITCHES, AND SOME MARKETING COSTS, ARE INCURRED AND ARE USEFUL OVER RELATIVELY LARGE MARKET AREAS. DOES THE EXISTENCE OF THESE COSTS COMPEL A MORE EXPANSIVE MARKET DEFINITION THAN THE INDIVIDUAL WIRE CENTER?

A. No. While there is no question that it is in the interest of the CLEC to spread the cost of large fixed investments over as broad a customer base as possible, the decision to deploy facilities to provide connectivity to the CLEC's network still is conducted on a very granular basis. As the manager of a CLEC, I may want to add

as many customers as possible to lower the cost of my fixed investments, but I gain nothing, and lose much, if the customers in a particular wire center produce negative net revenue. In deciding whether to obtain or construct collocation facilities in an individual wire center, the CLEC manager must consider the number of customers that reasonably can be expected to subscribe to the CLEC's services, the amount of revenue that will be produced by those customer, and must compare the anticipated revenue to the investments and operating expenses associated with adding those collocation facilities to the CLEC's network. If the wire center cannot contribute to the bottom line, it simply will not make sense for the CLEC to offer services to customers in the wire center. For the reasons that I outlined above, I recommend that the Commission adopt the wire center as its principal unit of analysis for determining whether competitors are impaired without access to unbundled switching.

Q. DO ALL CUSTOMERS IN A WIRE CENTER NECESSARILY FALL INTO THE SAME MARKET?

A. Not necessarily. There are two circumstances when a finer level of disaggregation may be necessary. The first is where the CLEC is unable to offer the same package of services as the ILEC. The second is where there is a longstanding practice of price discrimination between two groups of customers.

Q. PLEASE EXPLAIN THE CIRCUMSTANCES UNDER WHICH THE CLEC WILL BE UNABLE TO OFFER THE SAME PACKAGE OF SERVICES AS THE ILEC.

A. The *Triennial Review Order* determined that the ILEC does not need to unbundle its network to enable a competitive carrier to offer Digital Subscriber Line ("DSL") service on ILEC loops that are provisioned with Digital Loop Carrier ("DLC") equipment. *Id.* ¶ 213. This will place the CLEC at a competitive disadvantage relative to the ILECs, which in many cases have deployed DLC equipment capable of providing their own retail customers with DSL service.

3. Price Discrimination

Q. PLEASE EXPLAIN THE ROLE THAT PRICE DISCRIMINATION PLAYS IN DEFINING MARKETS.

A. Basic economic principles require a departure from the ordinary process of market definition in the presence of price discrimination – "charging different prices for the same product, for example." *HMG 1.12 Product Market Definition in the Presence of Price Discrimination.* If the characteristics of the product and its buyers permit profitable price discrimination, then market definition must recognize "particular use or uses by groups of buyers" and "particular locations of buyers" that would be targeted for higher prices. *HMG 1.12 Product Market Definition in the Presence of Price Discrimination, and HMG 1.22 Geographic Market Definition in the Presence of Price Discrimination.*

This situation arises whenever the hypothetical monopolist in a tentatively defined market "can identify and price differently to those buyers ("targeted

buyers") who would not defeat the targeted price increase by substituting to other products." When this situation arises, the tentative market has been defined too broadly, and must be divided to recognize "targeted buyers," whether identified by location, by the nature of their use of the product, or by membership in an identifiable group of buyers.

Q. HOW DOES THE POSSIBILITY OF PRICE DISCRIMINATION AFFFECT THE MARKET DEFINITION YOU HAVE JUST DESCRIBED?

A. As I discussed above, market definition in the presence of price discrimination must treat as separate markets those groups of "targeted buyers" who cannot effectively avoid a "targeted price increase by substituting to other products." *HMG 1.12 Product Market Definition in the Presence of Price Discrimination.* The price difference between small business customers and residential customers receiving essentially identical service is a classic example of this form of price discrimination.

The FCC specifically directs state commissions to recognize, for market definition purposes, that "competitors often are able to target particular sets of customers." *Triennial Review Order* n.1539 (interpreting accompanying text at ¶ 495). CLECs provisioning their own switches can, and do, target business customers, even to the exclusion of residential customers. This is partly because the characteristics of business customers, even very small ones, are different than residential customers, suggesting differences in CLECs' abilities to serve these different groups of customers – a factor the Commission must consider in defining markets. Further, because of the long-standing ILEC practice of targeting

business customers for higher rates than residence customers, CLECs can also target this group and price differently. The customer class distinction was upheld in the 96-98 First R&O with regard to resale (962) and in the UNE Remand Order. *Triennial Review Order* ¶126.

While the Commission need not find that residential and small business customers constitute separate markets, it must recognize that the provision of local exchange services to small businesses – where relatively high revenues per customer and a relatively low number of customers are the rule -- differs from the provision of local exchange services to residential customers, where the average revenue per customer is lower and where a much larger number of customers is involved. In particular, evidence that a CLEC is providing switch-based services only to small business customers, without also providing services to residential customers -- should not be taken as evidence that residential customers would have access to competitive alternatives in the absence of UNE-P.

IV. THE CLEC'S DEPLOYMENT DECISION

Q. PLEASE DESCRIBE THE CONSIDERATIONS THAT ENTER INTO A CLEC'S DECISION TO DEPLOY SWITCHING FACILITIES.

A. To determine whether to enter a particular market using UNE-L, a CLEC must first assess the operational barriers. A CLEC obviously will not even consider making the substantial investment involved in UNE-L service until it is persuaded that available systems are sufficient to provide the service, and until it is able to evaluate the costs involved in overcoming operational barriers.

The most substantial of these operational barriers are analyzed in the testimony of James Webber and Sherry Lichtenberg submitted in this proceeding. As detailed in that declaration, the OSS required for processing CLEC orders for UNE loops are significantly more complex than those required for UNE-P orders, and the prospect of shortcomings in those systems impose great risks on the revenues and costs that enter into the feasibility of deploying facilities for UNE-L based service. Whereas UNE-P orders can be handled electronically, with no rearrangement of physical components of the network required, an order to change a customer's service from the ILEC to a UNE-L based CLEC requires orders to (1) disconnect the customer's loop from its termination on the ILEC's switch and connect that loop to CLEC equipment in its collocation space, (2) change the customer's record in the number portability database to reflect that the customer's number is now associated with the CLEC's switch, and (3) update 911 and 411 records. Additional internal CLEC processes are required to establish connectivity from the collocation space to the CLEC's switch, and to establish the customer's service within the CLEC's switch and in its billing systems.

Further, it is critical that these processes be closely coordinated. Failures of coordination can lead to disruption to the customer's telephone service. It is likewise critical that the OSS in place to process these orders be reliable and predictable, as well as scalable to allow for a large-scale transition of customers from UNE-P to UNE-L based service, and to handle subsequent migration of customers among competing carriers. In addition to the costs incurred to ensure that this process works smoothly, a CLEC considering self-deployment of

switching facilities will evaluate the possibility of failures in operational coordination, and the risks associated with such failures.

The cost of these systems and the risk that such costs may not be recoverable constitutes a substantial barrier to entry. Some of these systems, such as systems for tracking the assignment of transport trunks and systems for entering customer records into CLEC switches, will be related to the CLEC's overall operations, and will be usable in each geographic market that the CLEC decides to enter. The cost of other systems, such as interfaces to the number portability and 411 and 911 databases, may vary from region to region. In making its evaluation of the profitability of a UNE-L based local service, the CLEC will consider whether its potential customer base, both nationally and in specific geographic markets, is sufficiently large that the CLEC can reasonably expect to recover the costs of developing and implementing its OSS.

Q. HOW ARE OPERATIONAL BARRIERS CONSIDERED IN YOUR ECONOMIC FEASIBILITY ANALYSIS?

A. In the analysis that follows, I assume that these operational barriers all are overcome. My understanding, however, is that many of these barriers have not been overcome, and that this assumption is counter-factual. I stress, therefore, that unless and until these operational issues have been addressed both as a technical matter and as a cost matter (that is, that the costs of addressing these operational barriers is accounted for in some competitively neutral manner), no further analysis is necessary – if UNE-L service cannot be provided in a way that meets the consumers' legitimate demands for high-quality service, any rational carrier

would be extremely unlikely to make the investment necessary to provide that service. Moreover, even if these issues have been addressed sufficiently to permit entry, the CLEC will have to take any remaining difficulties into account in assessing the risk of entry.

Q. APART FROM OPERATIONAL BARRIERS, WHAT OTHER CONSIDERATIONS INFLUENCE A CLEC'S DECISION TO ENTER THE MARKET?

A. In order to come to a decision to enter a particular market, the CLEC must conclude that it has a reasonable prospect of obtaining sufficient revenue from its customers both to defray its operating expenses and to recover any investments that it must make to enter the market. In other words, the CLEC must determine that it will make a profit taking into account likely revenues and costs. The CLEC must also take account of the risks that it will not make a profit despite its best estimate that it will. The greater the uncertainty of entry, the less likely the CLEC is to enter.

The economic calculus may differ between the "hypothetical efficient entrant" that does not already have some investment in network facilities and in its establishment of collocation facilities to serve a particular wire center and an actual carrier, such as MCI, that may already have some sunk investment in place. The *Triennial Review Order* requires analysis of a generic hypothetical efficient entrant, which is the construct underpinning the analysis that follows. *Id.* ¶ 517. In a subsequent section, I will address certain issues relevant to a carrier with sunk investments.

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR ANALYSIS OF THE FEASIBILITY OF POTENTIAL DEPLOYMENT.

A. My analysis separately assesses costs and revenues in order to determine whether entry in a particular wire center is likely to be profitable under a variety of scenarios. The scenarios are used to determine the likelihood of profitability.

In order to assess cost of entry using a UNE-L strategy, I used an analytical tool adapted from a model constructed by Dr. David Gabel on behalf of the National Regulatory Research Institute. Dr. Gabel's model, while quite detailed and comprehensive, did not consider several aspects of the cost problem facing the CLEC. The model has been extended to provide flexibility to consider a wide range of services, including services for small business, services for large enterprise customers, and ADSL services provided both to residential and business customers. The structure of the model also was modified to permit a very granular analysis of the individual cost components that contribute to the total per-line and total per-wire center costs faced by the CLEC. A number of different scenarios are considered, including virtual, cageless, and caged collocation options, and unbundled dedicated transport, special access, and EEL transport options. Among these options, the impairment analysis tool chooses the least-cost combination of options, and compares the cost of providing a range of services with the revenues derived from customers for those services in order to calculate the net revenue available to a CLEC contemplating facilities-based entry into each wire center.

A. CLEC Costs

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section I will describe the costs that a CLEC would incur to obtain switching to support entry under a UNE-L strategy. I will also describe which of these costs are fixed and sunk, and which of these costs provide the ILEC with a cost advantage over the CLEC.

I begin by describing those costs that are identical (or similar) for a CLEC and ILEC. I then describe those costs that a CLEC would incur that an ILEC would not incur. To do this, I will compare the processes that the ILEC and CLEC must undertake to connect the exact same loops to their switches. It will be readily apparent that it costs the CLEC a great deal more than it does the ILEC to connect the loop to the switch, greatly raising the CLEC's costs. This is important, because, as explained above, it is well recognized that cost differences can be an important barrier to entry. *Triennial Review Order* ¶¶ 87-90 (barriers include scale economies, first-mover advantages and absolute cost disadvantages). I also describe which costs are sunk, as sunk costs can pose a particularly formidable barrier to entry. *Id.* ¶ 88. Finally, I'll describe in general terms the calculations that the analytical tool performs in estimating the costs that will be considered by a CLEC considering the deployment of facilities to offer service on a UNE-L basis.

Q. WHAT CATEGORIES OF COSTS MUST BE CONSIDERED?

A. The broad categories of cost to be considered are loops, switches, the connection between the loop and the switch, collocation of the CLEC's facilities in the

ILEC's wire center, the cost of digitization, concentration and aggregation, transport to the CLEC's switch, and the cost of cutting over the loops. As a rule, I estimate TELRIC costs.

Q. WHY IS IT APPROPRIATE TO USE TELRIC COST ESTIMATES?

A. The TELRIC standard has been designed to estimate the cost that would be incurred by an efficient carrier serving the relevant demand in the relevant market, using the most efficient currently available technologies and methods. As such, it comports with the FCC's directive that, in considering potential deployment of switching and transport facilities, the cost that would be faced by an efficient carrier be considered.

Q. PLEASE DISCUSS YOUR TREATMENT OF THE COST OF LOOPS.

A. The cost of loops used in the model is the rate established by the Commission in each of the three UNE rate zones. Thus, for each wire center the UNE rate applicable to the rate zone to which the wire center is assigned is the cost to the CLEC of providing the loop portion of local exchange service. In addition, the cost of interconnection between the ILEC's facilities and the CLEC's collocation space, or to Enhanced Extended Loop ("EEL") facilities is considered.

Q. PLEASE DISCUSS THE COST OF SWITCHES.

A. A CLEC evaluating the possibility of deploying facilities to provide UNE-L service must consider the cost of the switch. Switches are readily available from the various switch manufacturers as well as in secondary markets. Unlike many of the other costs faced by the CLEC, the cost of the switch is predictable and consistent (for any given level of demand) for all geographic markets that the

CLEC might contemplate entering. And, although much of the price of a switch constitutes a fixed cost, since it is necessary to purchase an entire switch processor and switch matrix to serve even one customer, it is not a sunk cost. (As discussed below, however, the cost of installing and configuring the switch may be a sunk cost.) For these reasons, the purchase of the switch itself does not in and of itself constitute an insuperable entry barrier.

Although local exchange switches are readily available and can be rapidly deployed, the CLEC must evaluate, on a market-by-market basis, whether the potential customer base is sufficiently large that the costs that are sunk in installing and configuring a switch may reasonably be expected to be recovered. Parts of modern switches (*e.g.*, line units and line cards) are designed to be scalable to customer demand; thus, the corresponding portion of the cost of switches is variable with respect to the number of customers served. Nevertheless, there may still be significant sunk costs incurred before the first customer can be served. These costs include engineering costs; the costs of purchasing, transporting, and installing the switch; the costs of acquiring space to house the switch and to supply it with power, climate control, and necessary testing equipment.

In the impairment analysis tool -- Exhibit MTB-2 -- I use the default values for per-port switching investment presented by Dr. Gabel in his CLEC cost model as the input for the CLEC's switching cost. I would note that the switch investment inputs used in the Gabel model result in a per-line monthly cost roughly the same as the unbundled local switching rate established by the

Commission. By using a per-line investment input (with a simple mark-up for land and building investments and other ancillary costs), I have ignored any economies of scale that may be present in provision of the switching function. In effect, I am assuming that CLEC customers can be served by a switch located in such a way as to take full advantage of economies of scale in switching, without regard to the actual location of those customers. This approach obviates any concern that my wire-center market definition might be too narrow to allow the CLEC to take advantage of pertinent economies of scope and scale in switching.

Q. PLEASE DISCUSS THE COST OF THE CONNECTION BETWEEN THE LOOP AND THE CLEC SWITCH.

A. In addition to the costs of the loop and the switch, the CLEC must incur substantial costs to connect the leased loop to its switch – costs that the ILEC does not have to incur. These costs will vary for every wire center. These costs include the cost of establishing the collocation space and equipping that space with the necessary electronics to terminate purchased UNE loops, and the cost of establishing transport facilities to carry customer traffic from each collocated ILEC wire center to the CLEC's switch location. In both instances, the costs include non-recurring charges by the ILEC for establishing collocation and transport arrangements, as well as costs incurred by the CLEC for engineering and purchasing loop termination and transport equipment. These costs too are both sunk and fixed costs. Moreover, they are costs that are not incurred by the ILECs. In what follows, I describe the costs in more detail.

Voice telephone service has traditionally been provided by connecting a customer's premises to the ILEC's central office with a twisted pair of copper wires (*i.e.*, the local loop). The local loop terminates in the central office on a Main Distribution Frame ("MDF"). The local loops terminate on one side of the frame, the "customer facing side." On the other side of the frame – the "network facing side," short wires (referred to as "jumper wires") connect to ports on the ILEC's switch. This configuration allows for easy and flexible connections between loops and the local switch. The connection between the local loop and the ILEC switch consists of a single jumper wire, running from 15 to 100 feet in length. The cost of providing this jumper wire is very small, probably on the order of 2¢ a month.

This simple, inexpensive connection to the ILEC's switch is possible because the local network architecture was specifically designed and engineered to permit efficient and economical loop access to a monopoly local carrier. The placement of ILEC central office, and the configuration of the wires that connect these offices to the homes and businesses they serve, was based in part on engineering considerations. The ILECs' networks were designed to limit the length of most copper loops to 15,000 to 18,000 feet, to avoid having to add equipment to enhance the quality of the voice signal. Outside of rural areas, this allowed the ILECs to deploy switches that were sufficiently large to take advantage of scale economies.

To provide comparable service, the CLEC offering UNE-L service must substitute for this jumper wire a much more complex physical connection

between the MDF and its own switch. This is so because the CLEC switch will never be located as the ILEC switch is, 15-100 feet from the ILEC main distribution frame. It would be economically impossible for a CLEC to install a switch of its own at or near each ILEC central office, because those CLEC switches would serve too few customers to be cost-effective. Neither is it possible to collocate Class 5 switches in the existing ILEC offices, both because of space limitations and because existing rules do not permit it. Hence, unlike the ILEC, the CLEC cannot use an inexpensive 100-foot copper jumper to connect the local loop to its own switch. Rather, a CLEC must locate its switches in central locations and transport the traffic from the loop to that centralized location.

That transport involves a great deal more than simply connecting a very long jumper wire to connect the loop to the CLEC switch, for two reasons. First, for technical reasons, the signal would be unlikely to survive this form of transport to the distant CLEC switch. Second, even if this technical limitation were ignored, it would be very costly and inefficient to run so many wire pairs from the various central offices the entire distance to the CLEC's centralized switch.

Instead of a connecting a simple jumper cable, the network operations necessary for CLECs to connect UNE loops to CLEC switches involve four stages. First, the CLEC must rent space in the ILEC's central office to "collocate" its own network equipment. Second, the CLEC must purchase and install electronic equipment in the collocation space that converts the analog loop signal into a digital signal, and at the same time aggregates and concentrates multiple

loops into more efficient copper or fiber transmission facilities. Third, the CLEC must purchase or construct transport facilities to carry the traffic to its switch location. Fourth, when all of these connections are established, the ILEC and CLEC must coordinate a "cut over" of the loop from the ILEC's main distribution frame to the "POTS bay" at the CLEC's collocation space. I will describe each of these processes and discuss the type and nature of the costs involved in each step. The FCC recognized that an analysis of each of these costs is important to determine whether entry is economic. *Triennial Review Order* ¶¶ 481, 484 n.1497, 520.

Q. PLEASE DESCRIBE THE COST OF COLLOCATION.

A. The first thing a CLEC must do to provide UNE-L telephone service is to obtain collocation space at the ILEC central office at which the customer's loop terminates. Collocation is basically the rental of a small portion of central office space. There are three forms of collocation—(1) physical, caged collocation, (2) physical, cageless collocation, and (3) virtual collocation. Physical collocations are space assigned within an ILEC central office in which a CLEC can deploy its own hardware and equipment. This space is generally caged (*e.g.*, enclosed by meshed wire), to provide security. In physical, cageless collocation, a CLEC is generally assigned space in the ILEC's common equipment room where the CLEC can deploy its own equipment, but this space is not enclosed. In virtual collocations, CLECs purchase equipment; however, the ILEC takes ownership of the equipment (and responsibility for maintenance) and installs the hardware in the ILEC's equipment lineup. The type of collocation selected by a CLEC is often

driven by the availability (or lack thereof) of space in a given central office. Establishing the collocation involves a number of activities that will vary depending on the type of collocation established.

Q. PLEASE DESCRIBE THE ACTIVITIES INVOLVED IN ESTABLISHING A COLLOCATION.

A. In general, these activities include: (1) obtaining the necessary space in the ILEC's central office; (2) engineering the collocation; (3) arranging with the ILEC to provide the collocation (for physical caged collocations) as well as fire protection, heating, ventilation and air conditioning ("HVAC") and power, or, in, the case of a virtual collocation, to install the necessary equipment in ILEC-controlled space; and (4) establishing and pre-wiring the "POTS bay," which enables loops from the ILEC MDF to be connected to the CLEC's equipment at the collocation. While the cost of each element of establishing or continuing in a collocation arrangement is usually well defined by a tariff, Statement of Generally Available Terms and Conditions ("SGAT"), or interconnection agreement, determining the cost of collocation for a particular entry plan may be difficult and subject to substantial uncertainty. For instance, for a "cageless" collocation, some of the ILEC make-ready work is unnecessary. CLECs need to obtain direct current ("DC") power and emergency power from the ILEC to operate collocated equipment, and the nature of these arrangements can vary substantially. The specific equipment needed to provide this functionality includes the battery distribution fuse bay ("BDFB") and the DC power cabling that is extended from the BDFB to the collocation arrangement. The BDFB is a large fuse bay or

junction point where a large feed of DC power from the ILEC's power plant is broken down into smaller power units. The DC power cabling, consisting of copper cables in protective sheaths, is necessary to complete a power circuit from the BDFB to the collocation arrangement. In some cases, the CLEC may install its own BDFB in the collocation arrangement. In cases where it does not, it will usually install its own fuse and alarm panel in the collocation cage. It can cost the CLEC in the range of $75,000 to $150,000 to establish a collocation, and up to several thousand dollars in monthly fees to use a collocation. The impairment analysis tool calculates the cost of collocation by considering the number and type of lines that must be connected from the ILEC's main distribution frame and DLC systems to the CLEC's collocation space, and calculates, based on the ILEC's UNE tariffs, interconnection agreements, or SGATs, as appropriate, the cost not only of establishing and equipping the collocation space, but also the cost of connecting individual customer lines from the ILEC to the CLEC. Some of these costs are incurred as monthly recurring costs, and are incorporated into the cost analysis directly as a monthly cost per line. Other costs are incurred either as non-recurring charges imposed by the ILEC, or are incurred by the CLEC as capital investment. In some cases, these costs are treated as a one-time expense that is amortized over a user-adjustable period of time. In other cases, particularly in the case of capital investments, the asset is depreciated over an appropriate economic depreciation life, and the capital carrying cost of the asset is included as a part of the monthly cost per line.

Q. PLEASE DESCRIBE THE CHARACTER OF THESE COSTS AS SUNK, FIXED, ETC.

A. A substantial portion of collocation costs is fixed, *i.e.*, there is a large cost associated with providing service to the first UNE-L customer served. Moreover, most of the up-front costs are sunk, which means they cannot be recovered if the CLEC exits the market. As discussed in the *Triennial Review Order*, the existence of substantial sunk costs creates a significant entry barrier, which has profound effects on UNE-L competition.

Q. PLEASE DISCUSS THE COSTS OF DIGITIZATION, CONCENTRATION AND AGGREGATION.

A. As a consequence of the CLEC's need to place its switch at a substantial distance from the ILEC's wire center, in order for the CLEC to be able to carry the traffic from its collocation space all of the way to its switch, it must install in its collocation space equipment that digitizes and encodes the analog signals delivered over the customers' loops to that collocation space. The equipment used to perform this function is sometimes referred to as DS0 (that is, voice grade) equipment infrastructure. This equipment includes DLC equipment, high capacity digital cross-connection frames (DSX or DACS), power distribution and remote test equipment.

The DLC equipment is the equipment that receives the analog communications from the loop via the POTS bay and both digitizes and concentrates the communication for transmission to the CLEC's switch. Digitization of the analog signals from the loop is necessary in order to interface

the signal efficiently with the fiber optic transmission facilities that are used in interoffice transmission paths. Concentration of the signal permits the CLEC to more efficiently use interoffice transmission capacity. The DLC also interoperates with the CLEC switch to provide and receive signaling necessary for call supervision, including the provision of dial tone and ringing current, digit reception and related functions.

The CLEC must also install other equipment at the collocation to provide UNE-L service. A digital cross connection frame (or DSX-3) is needed to connect the DLC and the transport facility. In addition, a CLEC needs to install equipment that enables it to monitor its collocation equipment remotely, thereby permitting the CLEC to maintain its equipment and to diagnose and subsequently repair any service disruptions that may occur.

As in the case of the collocation costs, there are substantial fixed costs associated with these functions. The largest costs are for the DLC equipment, which even at its smallest size costs approximately $20,000. This input, as well as many of the other investment inputs used in the impairment analysis tool are those proposed by Dr. Gabel in the original version of the NRRI model. These in turn were derived from a variety of industry sources, including the FCC's synthesis model and various *ex parte* presentations made to the FCC by representatives of both CLECs and ILECs. And even if a CLEC can utilize the smaller DLC equipment efficiently, it will not be able to operate at the lowest possible cost unless it can achieve sufficient volume to capture the scale economies inherent in DLC technology.

The engineering and installation cost for these functions are sunk once they are committed to a particular central office. The purchase prices of the DLC and other equipment are not sunk with respect to the provision of service at a particular location, because they could be moved elsewhere. Nevertheless, if the CLEC were to exit the market entirely, it might have a hard time recovering substantial portions of the equipment cost if UNE-L-based service failed to succeed across much of the CLEC industry.

Q. PLEASE DISCUSS THE COST OF TRANSPORT TO THE CLEC'S SWITCH.

A. Once the CLEC customers' signals have been prepared for transport to the CLEC switch, the CLEC must arrange for transmission facilities to deliver traffic from the collocation to its switch. In most cases, a CLEC will not be able to use its own network facilities to connect the collocation to its switch because the traffic volumes present at a given collocation are typically too low to afford the economies of scale necessary to justify CLEC construction of transport facilities solely for this purpose. Rather, the CLEC will use the ILECs' transport facilities to connect its collocation either directly to its switch or to a "hub" location at which traffic from several sub-tending collocations in the area are aggregated and subsequently transported to the CLEC's switching location. Given appropriate traffic volumes, this hub location may be connected to the CLEC's switching office via the CLEC's own optical fiber transport facility. In either case, whether purchased from the incumbent or self-provisioned by the CLEC, a CLEC must

procure transport facilities between its collocations and switching locations to backhaul customer loops to its switch.

There are some sunk costs associated with providing transport for UNE-L based local service. If the CLEC leases transport from the ILEC, there will be sunk costs associated with any nonrecurring charges, term commitment plans, and any costs associated with "grooming" circuits to handle increased and/or changed traffic demand. If the CLEC has transport facilities already in place, then its costs were sunk before it decided to provide UNE-L based local service.

The CLEC will face significant scale effects on transport leased from the ILECs. Most transport tariffs provide substantial volume discounts, and unless the CLEC has enough traffic to utilize a DS3 or higher circuit, it will pay a high per unit cost for using DS1 circuits. Also, because transport circuits are provided in "lumpy" amounts (for example a DS1 circuit can carry 24 voice grade circuits, but the next larger size circuit, a DS3, carries 672 voice grade circuits), a CLEC will be less likely to use transport facilities efficiently, the smaller its total demand for transport.

Q. PLEASE DISCUSS THE PROCESS AND COSTS ASSOCIATED WITH CUTTING OVER THE LOOP SERVING A CUSTOMER CHOOSING TO BE SERVED BY A UNE-L BASED CLEC.

A. Once the necessary network infrastructure is in place, the CLEC is in a position to connect individual customer loops to its collocation (and ultimately to its switch). To accomplish this, the CLEC must arrange for what is typically referred to as a hot cut. The hot cut process involves multiple activities that require coordination

among both CLEC and ILEC personnel and includes, among other things (1) physically moving the CLEC customers' loops from the ILEC MDF to the POTS bay at the CLEC collocation and (2) coordinating the porting of the customer's telephone number to the CLEC's switch so that calls dialed to the customer's number can be properly completed. Once the hot cut has been successfully completed, a CLEC can then provide service to its end-user using its own switch.

In calculating the costs a CLEC would have to pay the ILEC for a hot cut, I used the rates established by the Commission for a hot cut. In calculating the internal costs for a CLEC to oversee a hot cut, I assume that the CLEC will incur costs of $10.00 per line as a baseline input.

The cost of the hot cut required to serve a particular customer amounts to an investment the CLEC makes to acquire the stream of revenue it expects from that customer. As such, the investment loses its value entirely if the customer switches to another provider. The CLEC must therefore recover this cost within the period over which it can expect to retain the customer. Thus, the average period over which a CLEC can expect to retain a customer is the appropriate amortization period for customer acquisition costs, including hot cut costs. As such, the average customer life, or retention period, is a crucial element of the cost that a CLEC must evaluate in deciding whether to deploy facilities for UNE-L service or not. This average customer life is conceptually related to the concept of "churn" experienced by telecommunications even in a monopoly environment, as customers enter and leave the provider's serving area, and move from place to place within the serving area. Estimates of churn can be significant in some

conventional cost studies, but churn in a monopoly environment is relatively stable and subject to fairly reliable approximations. Very much to the contrary, average customer life in a competitive environment depends on the nature of competition. In this case, the competitive environment to be considered is the environment after UNE-L based entry. While we have good reason to believe that the character of competition will be significantly different after UNE-L based entry – because a UNE-L competitor will have incurred greater sunk costs and face much lower marginal costs than a UNE-P based competitor – the precise character of that competition, and its implications for average customer life, must remain subject to a great deal of uncertainty. While conventional economic models are available to approximate market prices, hence expected revenues after entry, conventional economic modeling has little to say about the likely dynamics of competition after entry. This uncertainty is relevant, not only to the present modeling exercise, but to the CLEC's evaluation of risk associated with potential deployment of facilities to support UNE-L based service.

Q. PLEASE DISCUSS THE OTHER IMPORTANT INPUTS TO THE TOOL.

A. As I noted earlier, many of the inputs used in the impairment analysis tool are those proposed by Dr. Gabel in the original version of the model he developed. Where additional inputs were needed in connection with services or collocation elements not considered in Dr. Gabel's model, a variety of sources were consulted, including prominently the HAI Model and the HAI xDSL Adjunct Model. The sources of the inputs used in the model are documented within the model itself, in the form of comments attached to the description of each input

cell. Most of the costs we have described in this section are both sunk and fixed. It is difficult, if not impossible, for the CLEC to recover these costs from anyone other than the customer who ordered the service. Also, because the ILEC does not incur most of these costs to serve its embedded base, these costs fall within the classic definition of an entry barrier: namely, a sunk cost that the incumbent never had to incur.

Q. PLEASE DESCRIBE THE IMPAIRMENT ANALYSIS TOOL'S CALCULATIONS.

A. The analysis tool is organized as a set of four worksheets that provide inputs to its calculations, a number of worksheets that calculate various cost components, and two (or three) worksheets that summarize its calculations. Inputs are contained on the worksheets entitled "Inputs," "Tariff Tables – AL," and "WC Inputs." The "WC Inputs" worksheet contains detailed information on each wire center in the ILEC's operating area, including the number of lines in each of several service categories, and the distance from the wire center to a CLEC switch assumed to be located near the largest ILEC switch in each LATA. The "Tariff Tables – AL" worksheet contains detailed information on the rates charged by the ILEC for all aspects of collocation and interconnection arrangements. This information was compiled by MCI and provided to me for use in this model. Finally, the "Inputs" worksheet contains a large number of user-adjustable assumptions that are used in the analysis tool to calculate costs. These include the assumed market share captured by a single CLEC for each of several services, estimates of CLEC internal costs for activities such as accepting hot cuts and customer acquisition

and retention, and estimates of the purchase price of various items of equipment required by the CLEC in providing UNE-L based local exchange service, including DLC equipment, switches, DSL-related equipment, and digital cross-connect equipment.

Several worksheets perform calculations relating to the costs of establishing and operating a collocation space in each wire center. This includes all recurring and non-recurring costs incurred in establishing the collocation space, the costs of interconnection between the ILEC's loop facilities and the collocation space, and the capital costs incurred by the CLEC in equipping the collocation space. The analysis tool develops costs in each worksheet for virtual collocation, cageless collocation, and caged collocation. In addition, the worksheets calculate the cost of concentration and cross-connection equipment located in the ILEC wire center where EEL transport is used by the CLEC. These worksheets are:

1) "Collocation" – which calculates the collocation costs associated with voice grade residential and small business services;
2) "ADSL Collocation" – which calculates the combined collocation costs associated with voice grade services as well as ADSL services for residential and small business customers, and;
3) "DS1-DS3 Combined Collocation" and "DS1-DS3 Only Collocation" which calculate the collocation costs associated with the provision of DS1 and DS3 services in combination with voice grade and ADSL

services, and collocation costs associated with the provision of DS1 and DS3 services only, respectively.

Another set of worksheets performs calculations relating to the costs of acquiring transport facilities in order to carry traffic from each ILEC wire center to the CLEC's switch or hub. A number of possible scenarios are considered, including DS1 and DS3 unbundled dedicated transport, DS1 and DS3 special access transport, and EEL transport. For each form of transport, the non-recurring and recurring charges imposed by the ILEC for cross-connection, multiplexing and transport fixed and per-mile components are calculated, and non-recurring charges amortized as appropriate to produce a monthly per-line cost for each scenario. These worksheets are:

1) "Transport" – which calculates the transport costs associated with voice grade services for residential and small business customers;
2) "ADSL Transport" – which calculates the transport costs associated with voice grade services as well as ADSL services for residential and small business customers, and;
3) "DS1-DS3 Transport" – which calculates the cost of transport associated with DS1 and DS3 services.

A final set of worksheets is used to summarize the outputs of the collocation and transport worksheets and to select a least-cost alternative. These worksheets are:

1) "Minicost" – which summarizes collocation and transport costs pertaining to voice grade services for residential and small business customers;

2) "Minicost ADSL" – which summarizes the collocation and transport costs pertaining to voice grade services combined with ADSL services for residential and small business customers, and;

3) "ADSL Increment" – which determines the additional costs incurred as a result of a decision to offer ADSL services and restates those results as a per-DSL line cost.

Finally, the results of the calculation worksheets are summarized in the worksheet "Summary Calcs." This worksheet brings together the results of the various collocation, transport, and hot cut worksheets and, for each type of customer calculates the monthly cost per line and the total monthly cost. The results are presented for each transport type. The analytical tool determines whether the least-cost alternative is to configure transport facilities as DS1 or DS3 facilities, and selects the least-cost alternative among the various collocation types. These costs are compared to the monthly per-line revenues for each service type, and a total net revenue per line per month and a total net revenue per month is calculated for each service type for each wire center. As a final step, the "best case" is presented for the CLEC, choosing among the various transport and collocation options.

While ADSL costs and revenues are calculated for each wire center, the ADSL service is included in the net revenue and "best case" results only where

the net revenue for ADSL is positive. In some wire centers, where very few ADSL customers are available to the CLEC, the cost of the transport facilities needed to support the service cannot be justified given the available revenues. In such cases, it assumed that the CLEC would decide not to offer ADSL services to customers in that wire center.

A final summary worksheet – "Sims" – compiles information computed in the "Summary Calcs" worksheet and permits analysis of the variation in profitability among wire centers given variations within a range of inputs to the impairment analysis tool. As I have previously explained, considerable uncertainty must attend any analysis of the dynamic competitive situation that will be faced by a CLEC attempting to provide local service using its own switching facilities. Accordingly, the impairment analysis tool is designed to present a range of possible outcomes. Any two wire centers can be entered into the worksheet for comparative analysis. Six of the most important inputs to the analysis tool are shown on the worksheet and, for each, a range of possible variation is provided. A button on this electronic worksheet – "Generate Random Scenarios" – activates a macro procedure that populates the analytical tool input with random numbers within the specified range, calculates the result for 250 random scenarios, and presents the results graphically as a histogram showing the net revenue for each of the two wire centers. This permits a view of the range of possible outcomes in each wire center, with the most likely outcomes represented by the net revenue categories with the highest frequency.

B. Anticipated Revenues

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROCESS YOU USE TO ESTIMATE REVENUE.

A. First, it should be clear that the revenue estimate that is relevant to a CLEC considering potential deployment will be the revenue the CLEC expects to recover in the market as it will exist after UNE-L based competition has become established. Thus, an appropriate estimate of revenue to evaluate potential deployment is an estimate of future revenue in a different competitive environment than exists today. My judgment as to a reasonable estimate begins with existing prices, and is informed by simulations based on two widely used models of competitive interactions. These models are based on the costs faced by the ILEC and the CLECs, differentiating among costs that are fixed, sunk, or marginal, and specifying the nature of consumer demand for local exchange service. After forming estimates of costs and revenues that may obtain after deployment of facilities for UNE-L based provision of service, a CLEC considering potential deployment would compare future net revenues to the initial cost of entering the market; my calculation mimics the CLEC's investment decision.

Q. YOU STATED THAT REVENUE PROJECTIONS SHOULD BE BASED ON FUTURE REVENUES UNDER A DIFFERENT COMPETITIVE REGIME. PLEASE EXPLAIN.

A. To determine whether to serve a market using UNE-L, the CLEC must consider not only its costs, it must also consider the likely revenues from the services it

offers, including all categories of potential revenues. *Triennial Review Order* ¶¶ 484-85. Economic theory predicts that a CLEC will enter and compete against the ILEC only if the CLEC can expect to earn sufficient profits post-entry to enable it to earn an adequate return on the cost of the capital that it must commit to enter the market, recognizing the risk associated with the investment. Given the CLEC costs discussed above, and given the retail rates the competitor will be able to charge, the competitor may or may not be able to recover the costs it would have to incur to enter the market in the first place, in addition to the incremental cost of providing service.

In other words, before it enters a market, a competitor would need to understand its costs, estimate the revenue it would expect to receive, and determine whether entry would be profitable. Its revenue projections would be based on the rates it could charge, accounting for the effect of entry on competition, and the number of customers it expects to purchase its services. And, its rates are highly dependent upon the rates the other market participants would charge for substitutable services. The CLEC's price must be competitive with the ILEC's if the CLEC is to be successful. A CLEC considering potential deployment cannot rationally assume it will be able to charge $40 for phone service in the BellSouth region if BellSouth is likely to respond to entry by offering a similar service for $35.

Q. IS IT REASONABLE TO BEGIN YOUR ANALYSIS OF ANTICIPATED REVENUE WITH THE ILEC'S EXISTING RATES?

A. Yes, but only as a starting point. The ILEC's existing rates represent the highest conceivable rates that a CLEC might hope to charge after entry, and for reasons discussed below, it is not really plausible that those rates could be maintained after UNE-L competition becomes established.

Because a new entrant must generally offer rates that are no higher than those currently charged by the incumbent, existing retail rates are an optimistic starting point for any analysis of anticipated CLEC revenue. But, analysis of existing rates is only the starting point. Firms contemplating entry into new markets rationally base their entry analysis on the prices they expect will prevail after they enter, and not on current prices. This proposition is widely accepted in industrial organization economics, and the FCC understood it to be an important factor in an impairment analysis. *Triennial Review Order* ¶ 88 ("an entrant that knows that an incumbent LEC has incurred substantial sunk costs may be disinclined to enter a market because the incumbent LEC is likely to drop its prices, possibly to levels below average cost, in response to entry). See also *id.* ¶¶ 75 n.250, 83; 157 ("telecommunications prices are not static, and will change over time in response to increased competition"). Consideration of post-entry prices in calculating potential revenue is particularly important in the case at hand because the entrant (or entrants) will be adding new capacity to a market (new switches and new transport); unless other firms are willing to watch their facilities operate well below capacity, prices will have to fall, following the well understood rules

governing supply and demand. Because there is no reason to believe that other firms in the market will act unilaterally to reduce output to fully offset the increase in capacity by the new entrants, prices certainly will fall unless the firms in the market collude to constrain capacity.

Q. ARE THERE REASONS SPECIFICALLY RELATED TO A TRANSITION FROM UNE-P COMPETITION TO UNE-L COMPETITION THAT SUGGEST LOWER PRICES AFTER ENTRY?

A. Yes. There are two reasons related to marginal costs of the ILEC and CLECs that strongly suggest price reductions as UNE-L competitors become established and replace UNE-P competitors. First, the costs of providing UNE-P service largely take the form of monthly charges for the required UNEs. These costs are not fixed or sunk costs, but vary with the number of customers served. These variable or marginal costs create a floor, below which a UNE-P competitor will never allow price to fall. If the UNE-P competitor cannot recover its marginal costs, which comprise the bulk of its costs, it will not offer service. On the other hand, a UNE-L competitor faces a substantially different cost structure. For a UNE-L competitor, a large portion of costs is sunk, and the marginal costs, those that vary with the number of customers served, comprise a smaller fraction of total costs. Thus, once the initial costs of entry have been "sunk" into the business, a UNE-L competitor will be willing to reduce price down to its lower marginal cost in order to acquire or retain customers. The urgency of covering the sunk cost of entry, which can only be accomplished by having customers that contribute something, even a small amount, above marginal cost, creates a competitive environment that

is much more likely to involve substantial price reductions, than is the environment of UNE-P competition. So, assuming that UNE-L competition is economically and operationally feasible, CLECs face lower marginal costs and are under pressure to recover sunk costs by increasing volume.

When UNE-L competition becomes established, the ILEC also has a stronger incentive to win, or retain, a customer instead of having that customer served by a competitor. This is the case because the ILEC receives revenues related to a customer in two forms: If the customer chooses the ILEC at the retail level, the ILEC receives the retail price the customer pays for service. If the customer chooses a CLEC at the retail level, the ILEC still receives revenue for this customer, in the form of wholesale UNE revenue from the CLEC chosen by the end user customer. But the ILEC receives more UNE revenue from a UNE-P customer than from a UNE-L customer, as the UNE-P customer pays the ILEC for both switching and loops. In other words, the ILEC is worse off when a customer leaves it for a UNE-L CLEC than for a UNE-P CLEC and has a greater incentive to win the customer back. As a result, the ILEC is likely to cut prices further in the face of UNE-L competition than UNE-P competition.

Finally, as the market matures, CLECs' offerings should come to be regarded as closer and closer substitutes to the traditional ILEC's offerings. In the early days of competition consumers' lack of familiarity with CLECs' services provides a source of product differentiation that leads to a less rigorous form of competition. As the different providers' offerings come to be regarded as perfectly good substitutes for each other, price takes on greater importance as the

locus of competition, and entrants must anticipate corresponding reductions in market price. Potential entrants will also have to consider whether other firms will also enter the market at the same time that they do. More entry, at least when there are few firms in the market, generally will result in more aggressive price competition and lower market prices, which further reduces the post-entry profit margins of the entrants (as well as of the incumbent).

Q. BEYOND THE RELATIVELY SIMPLE NOTION OF "MARKET PRICE," WILL POTENTIAL ENTRANTS CONSIDER OTHER FACTORS?

A. Yes. A CLEC must consider what the prices are likely to be for particular types of customers in particular geographic markets. The revenue a CLEC is likely to earn is strongly affected by the ability of the incumbent to cut prices selectively in response to entry. The more the incumbent can fine tune its prices and target only those customers (by geographic area or other marketplace characteristic) where entry has occurred or is threatened, the lower the cash flows an entrant can expect. When the incumbent has greater ability to price discriminate, it has a greater incentive to cut prices in response to initial, small-scale entry. The reason is that the incumbent does need not to lose profits by "unnecessarily" cutting prices to customers who have no competitive alternatives.

Q. WOULD SUCH SELECTIVE PRICE CUTTING AMOUNT TO PREDATORY PRICING?

A. Not necessarily. It is important to recognize that the incumbent does not need to set prices at predatory levels to deter future entry. The conventional definition of predatory pricing defined it as pricing below variable or marginal cost, with the

intention of driving competitors out of the market. In a case where entry requires substantial fixed and sunk costs and the incumbent can target price reductions, however, the incumbent can set prices at a level at which the entrant can recover its variable costs, but will not be able to recoup its sunk costs. In that situation, while the entrant will remain in the markets to which it already has committed, it will not recover its sunk costs in those markets, and will learn not to enter new markets and challenge the incumbent.

Once the CLEC has estimated the price the ILEC likely will charge for services when faced with competitive entry, the CLEC must consider the extent to which it will be required to offer service at a discount from whatever price the ILEC is willing and able to charge, or incur the cost of developing additional features to differentiate their product, in order to take business away from the incumbent. Customers cannot be expected to switch from the incumbent to the new entrant simply because the new entrant has entered the market. New entrants can only obtain customers from incumbents by pricing their services below the level of the incumbent's prices or by offering distinctive services at a higher cost. At lower prices, all else equal, the entrant will earn lower margins (*i.e.*, will receive less cash flow) from each of its customers than will the incumbent. The higher costs associated with product differentiation likewise will result in lower margins for the new entrant.

Q. HOW DO YOU FORM AN OPINION AS TO THE EXTENT OF PRICE AND REVENUE REDUCTIONS A CLEC WOULD PROJECT IN EVALUATING POTENTIAL ENTRY ON A UNE-L BASIS?

A. In addition to observing the nature of competition now in progress, I consider two formal models of the process in which prices change as a result of competitive entry. That is, it is possible to show how an ILEC, seeking to maximize its profits, will adjust its rates in response to competition from a new entrant. And, it is equally possible to show the prices that CLECs would charge in response, so that they too would maximize profits. It is then possible to calculate the revenue the competitor would receive if it charged those prices to the customers it would attract by offering those prices.

Based on modeling of the competitive interactions among the carriers following entry by CLECs as UNE-L-based providers, I would expect prices to decline somewhere in the range of 11% to 20% over the course of time following entry by UNE-L based CLECs. Some of the price decline should happen very quickly, with continued declines occurring over time.

Armed with this information, it is then possible to make a realistic assumption about whether competitors will enter the market given the costs to provide service and the expected revenues that would be gained by a competitor. That is, my ultimate aim is to compare those expected revenues with projected costs. If projected revenues are below projected costs, then a competitor would not enter the market, because it would lose money if it did. If, on the other hand, the projected revenues allowed the competitor to recover its sunk costs, cover its

operating expenses, and earn a reasonable rate of return on its investment, it would enter the market (although the competitor might enter the market only in a limited way, charging relatively high prices to relatively few customers).

Q. ARE YOU CONFIDENT OF THE PRECISION OF YOUR ESTIMATES REGARDING THE COMPETITIVE ENVIRONMENT AFTER UNE-L BECOMES ESTABLISHED?

A. No, it is inevitable that substantial uncertainty must accompany any estimates of the nature of competition after substantial UNE-L entry. For one thing, it is important to recognize that a formal model may overestimate the opportunity for CLEC entry. In calculating CLEC costs and revenue opportunities, we have to make simplifying assumptions about the way in which a CLEC would operate in a world in which it relies on the ILEC to provide UNE loops and other network functions, but utilizes its own switches. For example, my quantitative analysis assumes that the ILECs provide UNEs to the CLECs on terms that are indistinguishable from their self-provisioning of these same elements. If this assumption is violated, then it is not possible to draw any conclusions from a quantitative analysis, for two separate and important reasons. This point cannot be overemphasized.

First, deficiencies in ordering or provisioning of UNEs will raise the CLECs' costs above our estimate levels, possibly by a very large amount. Second, if ILECs provide poor service to the CLECs, then the CLECs' customers will perceive that the CLECs' services are inferior to the ILECs. I note that opportunities for things to "go wrong" and result in inferior service for CLECs are

much greater in the more complicated UNE-L arrangement than with UNE-P. This will reduce the demand for the CLECs' services and force the CLECs to either set lower prices or sell less service. My quantitative analysis assumes that customers do not perceive any actual difference in the quality of ILECs' and CLECs' services.

The specific conditions that must be satisfied for my quantitative analysis to be applicable to the Commission's determination of impairment include the following:

- Customer cutovers from ILECs to CLECs and from CLECs to CLECs must be seamless. Cutovers must be available in a short time frame, and there should be virtually no possibility of cutting off service to a customer.
- All the UNEs still provided by the ILEC must be available on a non-discriminatory basis, to include TELRIC pricing, efficient and rapid ordering, provisioning, support and post-installation quality of service (e.g., static, cross-talk, downtime, echo, dial-up modem throughput, etc.).
- OSS must be robust enough to support a much larger volume of customer orders than would be apparent from the size of the CLECs' customer base. Systems must allow for significant customer turnover that is likely to occur as the ILECs engage in vigorous "winback" programs.

If these conditions are not met, the possibility of CLEC entry is likely to be much less than is shown by my analysis.

C. Impairment Analysis Tool Results

Q. WHAT ARE THE RESULTS OF THE ANALYTICAL PROCESS THAT YOU HAVE UNDERTAKEN?

A. I will first provide a snapshot view of the results of the analytical process. For any given set of input values, the impairment analysis tool produces the monthly cost per line for each wire center in the state of Alabama. This cost estimate includes all of the fixed and variable costs associated with serving the residential and business customers served out of a wire center. Fixed costs are amortized over the expected lifetime of the equipment, or serving arrangement (in the case of nonrecurring fees), or customer life (in the case of customer acquisition and hot cut costs). I also assume that the CLEC constructs an optimal-sized network to serve the expected customer base, and that the "steady-state" customer base is reached immediately.

The cost inputs selected for the base case are mostly from the original model prepared by Dr. Gabel. As explained above, I have added revenues and costs from business customers and DSL service. Other key inputs in this case are:

- Market Share: 5% across all markets and services (business and residential, voice and DSL). This is based on an assumed 15% market share for the CLEC industry, spread evenly across three CLECs. The range of market share considered in the model is between three and eight percent.

- Revenue: The impairment analysis tool uses data on residential revenue by wire center compiled by TNS Telecoms, based on surveys of actual subscriber bills. These data are for average wire center specific spending *per household*, including taxes and SLCs. This is well in excess of the average revenue *per subscriber line*, because many households – including those in the sample from which this estimate was derived -- have two or more lines. Business revenue is based on the calculation of the differential between the bundled price for residential and business services sold by MCI in Alabama.
- The range of variation in revenue considered is between 85% and 95% of current spending for both residential and business voice services. This is not based on a specific result of the analysis of expected price declines in the market, although I expect UNE-L-based competition to drive prices down to the low end of this range.
- Customer life is twelve months, which is based on the recent experience of MCI. The range in variation considered is between eight and sixteen months.
- Customer acquisition costs are set at $130, which a range between $110 and $150 considered.

- CLEC costs to accept hot cut transitions from the ILEC to the CLEC's service is estimated at $10.00, with a range considered between $7.00 and $13.00.

The results for each wire center market are reported in the impairment analysis tool on the "Summary Calcs" worksheet.

Q. ARE THE RESULTS OF THE BASE CASE SENSITIVE TO THE INPUTS THAT YOU SELECTED?

A. Yes. The results are highly sensitive to the inputs selected. To illustrate this point, I have selected two wire center markets in the same LATA in Alabama, and run the analysis tool using a range of plausible inputs. This demonstrates that the CLEC will face significant uncertainty as to its prospects of recovering its sunk cost investment in most markets.

I have selected two wire centers in Alabama to illustrate how the impact of input selections will itself be a function of the characteristics of the wire center, including: the number of residential and business customers; the extent to which customers are served by DLC, which forecloses the CLEC from providing DSL service; and the distance to the CLEC switch. Exhibit MTB-3 shows how average net revenue varies in response to changes in the inputs.

In this chart, the results of the impairment analysis tool are shown for two wire centers in Birmingham, both in UNE rate zone 1. The histogram displays the number of cases, out of 250 scenarios, where the net revenue per line for the wire center fell into each of 57 categories, ranging from $(40.00) or less per month to $15.00 or more per month. While the BRHMALVA wire center tends to be

somewhat closer to profitability than the BRHMALFS wire center, it still produces negative net revenue in 186 out of the 250 scenarios (74%). The BRHMALFS wire center produces positive net revenue per line in none of the 250 cases.

Note that although the two wire centers are both located in the same exchange area and rate zone, the characteristics of each wire center cause dramatically different results given the same set of inputs. This reinforces the point I made at the beginning of this testimony; that the ability of a CLEC profitably to provide local exchange services in one wire center is not proof that other wire centers in the same exchange, the same metropolitan area, or the same LATA also can be served.

V. MCI IS DIFFERENT

Q. WOULD YOUR CONCLUSIONS ABOUT THE HYPOTHETICAL CLEC BE DIFFERENT FOR AN ACTUAL CLEC, SUCH AS MCI, THAT WAS NOT STARTING FROM SCRATCH?

A. Under many circumstances my analysis of the hypothetical CLEC would apply to the case of an existing CLEC like MCI. There are other circumstances in which an actual CLEC would face a different business case than the base case of the hypothetical CLEC, which I have shown in the impairment analysis tool. The main factors that would cause the situation of the actual CLEC to differ from the hypothetical CLEC are: (1) the CLEC is already serving large business customers in the same wire center with special access or UNE transport; (2) the CLEC is

already collocated in the wire center; and, (3) in addition to being collocated, the CLEC also is connected to the collocation with its own transport facilities.

In the case of a CLEC already serving business customers at that wire center, but not yet collocated, there is the potential that it could build a new collocation to serve enterprise and mass market customers. The benefit to the CLEC is that it could take advantage of any economies of scale (or scope) in the costs of collocating and transport. This may cause some collocations that are marginally unprofitable for UNE loops alone to become profitable. The impairment analysis tool has been built with the capability of measuring the economies of scope between the enterprise market and the mass market. Therefore, if I were to be given information on the number of DS1 and DS3 circuits at every wire center in Alabama, I could run scenarios to test whether entry conditions are much more favorable for a CLEC already serving enterprise customers.

If a CLEC were already collocated in a wire center, it could benefit from certain economies of scale and scope. For example, some nonrecurring costs associated with the establishment of the collocation could be spread over a larger volume of business, and per-unit costs therefore may be lower. Also, it is possible that in the short-term the CLEC would have excess, unused capacity for some components, *e.g.* racks that are used for the DS1 and DS3 customers. Even so, the CLEC would still have to have enough UNE-L customers to achieve economies of scale in many of the cost components related to its mass market service. For example, DLC equipment is not used for DS1 and DS3 customers, and the CLEC

would need enough customers to achieve scale economies in the use of this equipment. As in the first case mentioned above, it would be possible to measure the impact of existing collocations on a CLEC's costs using the model that I have developed for the UNE-L business case of a hypothetical CLEC.

The third case listed above would be even more favorable to UNE-L based entry by the CLEC. The reason is that the incremental cost to the CLEC of transporting traffic from UNE-L customers would be lower than when it must lease transport from the ILEC. Once again, this does not mean that the CLEC will always enter the UNE-L market, because it still must invest in additional collocation space and DLC equipment. Whether this would alter the outcome in a specific case can only be answered with the aid of the model and additional information on the capabilities and capacity of the CLEC's fiber ring.

Q. WHAT STEPS CAN THE ALABAMA PUBLIC SERVICE COMMISSION UNDERTAKE TO ENCOURAGE FACILITIES BASED COMPETITION BY COMPANIES LIKE MCI THAT ALREADY HAVE ESTABLISHED SOME LOCAL FACILITIES?

A. I earlier identified certain operational problems that must be overcome before any consideration of the economics of UNE-L based service to mass market customers by any CLEC can take place. These include rapid and seamless cutovers from ILECs to CLECs and from CLECs to CLECs, the nondiscriminatory availability and efficient provisioning of the unbundled elements that the ILECs are still required to provide at TELRIC-based prices, and

the development of robust OSS capable of handling large volumes of customer migration.

The economic analysis that I have presented shows that perhaps the most crucial factors affecting the economic viability of UNE-L based local service to mass market customers are the level of cost for customer-specific investments and nonrecurring charges and the period of time over which those costs may be recovered. The FCC specifically cited economic impairment resulting from hot cut costs as a concern and requires future hot cut processes to be implemented by the state public utility commissions be more efficient and have lower costs than the processes currently in place. See, for example, *Triennial Review Order* ¶ 473. While it is not my intention here to recommend a specific price rate elements related to hot cuts, I do recommend that the Commission determine hot cut costs based upon the most efficient, least-cost technologies, processes and procedures which can be utilized in order to effectuate seamless transitions between carriers switches. Moreover, I recommend the Commission consider whether costs incurred by ILECs in performing hot cuts are most appropriately recovered through nonrecurring charges, or whether some other rate structure would reduce the likelihood of impairment. The Commission could, for example, contemplate the development of a competitively neutral cost recovery mechanism whereby the costs of implementing loop portability sufficient to eliminate impairment can be spread across all participants who may benefit from such portability similar to equal access or LNP cost recovery mechanisms.

VI. CONCLUSION

Q. WOULD YOU PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS?

A. Yes. I have shown that the most appropriate definition of the relevant market both for the purpose of the actual deployment "triggers" analysis and for the purpose of analyzing potential deployment of CLEC switching facilities in the absence of UNE-P, is the wire center. While economic theory would compel a market definition at the level of the individual customer location, administrative practicality as well as the nature of CLEC deployment decisions strongly indicate the wire center as the appropriate level of analysis, rather than some larger aggregation of wire centers such as the exchange, the metropolitan statistical area, the LATA, or the UNE rate zone. CLECs may decide to offer local exchange service in a larger market area, but whether individual customers will actually have a choice among competitive carriers depends upon the economic characteristics of the wire center in which each is located. That local exchange service can profitably be offered in one wire center is not proof that the same service can be located in nearby wire centers – CLECs will not choose to offer services in those wire centers that will reduce profitability.

Any analysis of the profitability of CLEC local exchange service in the absence of UNE-P must make a number of assumptions regarding the situation that the CLEC will face. Market share and customer "churn" may be highly dependent upon the marketing activities and "winback" programs undertaken by the incumbent LEC (and by other CLECs). Average revenue per customer likewise will depend upon the aggressiveness of the incumbent in cutting prices

and upon the discount that the CLEC must offer to attract new customers. The external and internal costs of migrating customers from UNE-P to UNE-L service are only partially under the control of the CLEC, and any systemic problems in implementing hot cuts may affect churn, market share and average revenue.

Each of these factors is crucial in determining the profitability of CLEC UNE-L based local exchange service. Each is, to a greater or lesser extent, interdependent with the other factors. And each is only partially under the control of the CLEC. Given the uncertainty faced by the CLEC in a post-UNE-P environment, no one can say with certainty that any wire center in Alabama is feasible for economic deployment of CLEC local exchange service in the absence of UNE-P. At best, one might say that some wire centers in Alabama might be profitable under some set of optimistic assumptions. At worst, one would be forced to conclude that no wire center in Alabama can profitably be served by UNE-L based CLECs.

As I explained at the beginning of this testimony, the consequences of an erroneous finding of non-impairment are serious and irreversible. The consequences of an erroneous finding of impairment are minor and largely will be self-correcting. In view of the uncertainty surrounding any analysis of the potential deployment of CLEC UNE-L based local exchange service, I believe the Commission must find that the FCC's finding of CLEC impairment in the absence of access to unbundled switching should be sustained.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

EXHIBIT 1

Q. Please describe briefly your background and experience in telecommunications.

A. I received the Ph.D. degree from the College of Communications of the University of Texas at Austin, in December, 1982. My doctoral program concentrated on the economics and regulation of the telecommunications and broadcast industries. The title of my dissertation was "Competition, Concentration, and Diversity of Expression in the Cable Communications Industry." It was an analysis of the trend toward increasing vertical and horizontal integration in the cable communications industry, and the implications of that trend for competition within that industry.

Following completion of my doctoral program, I was appointed Assistant Professor in the Department of Telecommunications at the University of Kentucky. In that position, I taught both graduate and undergraduate courses in telecommunications and broadcast regulation, in statistics, and in television programming, including graduate seminars in the regulation of telecommunications utilities and the history and implications of the MFJ. I also was responsible for the development of a new curriculum for the College of Communications in the regulation of telecommunications utilities.

I assumed the position of Staff Administrator with MCI Telecommunications in September of 1984. From April of 1985 until January of 1991, I was Manager, Texas Regulatory Affairs for MCI. From January of 1991 until September of 2002, I was Executive Staff Member, Regulatory and Economic Analysis in MCI's corporate regulatory organization. In that current position, I was responsible for the analysis of regulatory proceedings at the FCC and in various states across the nation, and for assisting in the development of MCI policy in regulatory matters.

I currently am self-employed as a consulting economist.

I have previously filed testimony in the following proceedings:

Docket

Public Utility Commission of Texas

5610 Application of GTE Southwest, Inc. for a Rate Increase

7160 Application of Southwestern Bell Telephone Company for Authority to Implement Rates and Regulations for Intrastate Interim 800 Service.

7330 Inquiry into WATS Competition on Multi-Jurisdictional WATS Access Lines.

7790 Petition of the General Counsel for an Evidentiary Proceeding to Determine Market Dominance Among Interexchange Telecommunications Carriers.

8585 Inquiry of the General Counsel into the Reasonableness of the Rates and Services of Southwestern Bell Telephone Company.

8790 Application of Southwestern Bell Telephone Company to Offer an Experimental Optional Calling Plan (Discounted IntraLATA Rates).

9301 Southwestern Bell Telephone Company Statement of Intent and Application under Subst. R. 23.27 Requesting the Service Market for Central Office Local Area Network (C.O. LAN) Service to be Declared Subject to Significant Competition and to use Customer Specific Pricing.

10131 Petition of Southwestern Bell Telephone Company for Approval of Maximizer 800 Common Line 800 Service.

10817 Treatment of franchise tax reduction under SWB incentive regulation program.

18515 Compliance Proceeding for Implementation of the Texas High Cost Universal Service Plan.

In addition, I testified in Travis County District Court, Cause No. 458,204, *US Sprint, et. al., v. P.U.C. of Texas, et. al*

Oklahoma Corporation Commission

PUD 000837 In the Matter of the Application of Southwestern Bell Telephone Company for Approval of Telestate/21, A Proposal for Rate Stability, Network Modernization, and Price Regulation.

California Public Utility Commission

I.87-11-033 In the Matter of Alternative Regulatory Frameworks for Local Exchange Carriers.

01-02-035 Application of AT&T Communications of California, Inc. (U 5002 C) and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Loops in Its First Annual Review of Unbundled Network Element Costs Pursuant to Ordering Paragraph 11 of D.99-11-050.

Washington Utilities and Transportation Commission

U-89-3245-P Evaluation of US West Incentive Regulation Program.

UT-911488 WUTC v. US West Communications

UT-911490 UT-920252	Centrex Plus Costing and Pricing

South Carolina Public Service Commission

93-036-C	Generic Proceeding to Review Intrastate Open Network Architecture (ONA) Services

Illinois Commerce Commission

94-0048 94-0049 94-0096 94-0117 94-0146	Consolidated proceedings generally dealing with conditions necessary for the establishment of local exchange competition

Pennsylvania Public Utility Commission

I-940035	Formal Investigation to Examine and Establish Updated Universal Service Principles and Policies for Telecommunications Services in the Commonwealth
M-00001353	Re: Structural Separation of Bell Atlantic-Pennsylvania, Inc.'s Retail and Wholesale Operations

New Mexico Public Regulation Commission

Utility Case 3495	In the Matter of the Consideration of Costing and Pricing Rules for OSS, Collocation, Shared Transport, Non-Recurring Charges, Spot Frames, Combination of Network Elements, and Switching

Federal Communications Commission

CC 96-98	Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 (First Triennial Review, 1999). Declaration regarding economies of scale in the provision of local exchange services.
CC 96-98	Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 (Second Triennial Review, 2002). Declaration regarding economies of scale in the provision of local exchange services.
CC 99-273	In the Matter of Provision of Directory Listing Information Under the Communications Act of 1934, as amended. Declaration regarding economic feasibility of implenting 411 presubscription.

Japanese Ministry of Posts and Telecommunications, Tokyo, Japan

Public Hearing on Interconnection Rates and Rate Structure (11/99)

Selected Papers and Presentations at Professional Meetings and Conferences

9/92	Paper, "Unbundling of Local Exchange Network Functions and Related Costing Issues." Eighth NARUC Biennial Regulatory Information Conference, Columbus, OH
6/93	Panelist, NASUCA Mid-Year Meeting, St. Louis, MO

6/93 Panelist, 16th Annual NARUC Regulatory Attorneys Conference, Whitefish, MT

12/93 Panelist, NTIA Hearings on Universal Service, Albuquerque, NM

8/94 Panelist, TSTCI Futures Conference, Austin, TX

12/95 Panelist, Telecommunications Policy Research Conference, Williamsburg, VA

11/96 Panelist, NARUC Annual Convention, San Francisco, CA

1/97 Panelist, Federal-State Joint Board workshops on Universal Service, Washington, DC

3/97 Panelist, New Mexico State University Center for Public Utilities Annual Conference, Santa Fe, NM

6/97 Panelist, University of Florida workshops on Universal Service, Gainesville, FL

6/97 Panelist, NARUC Summer Meetings, San Francisco, CA

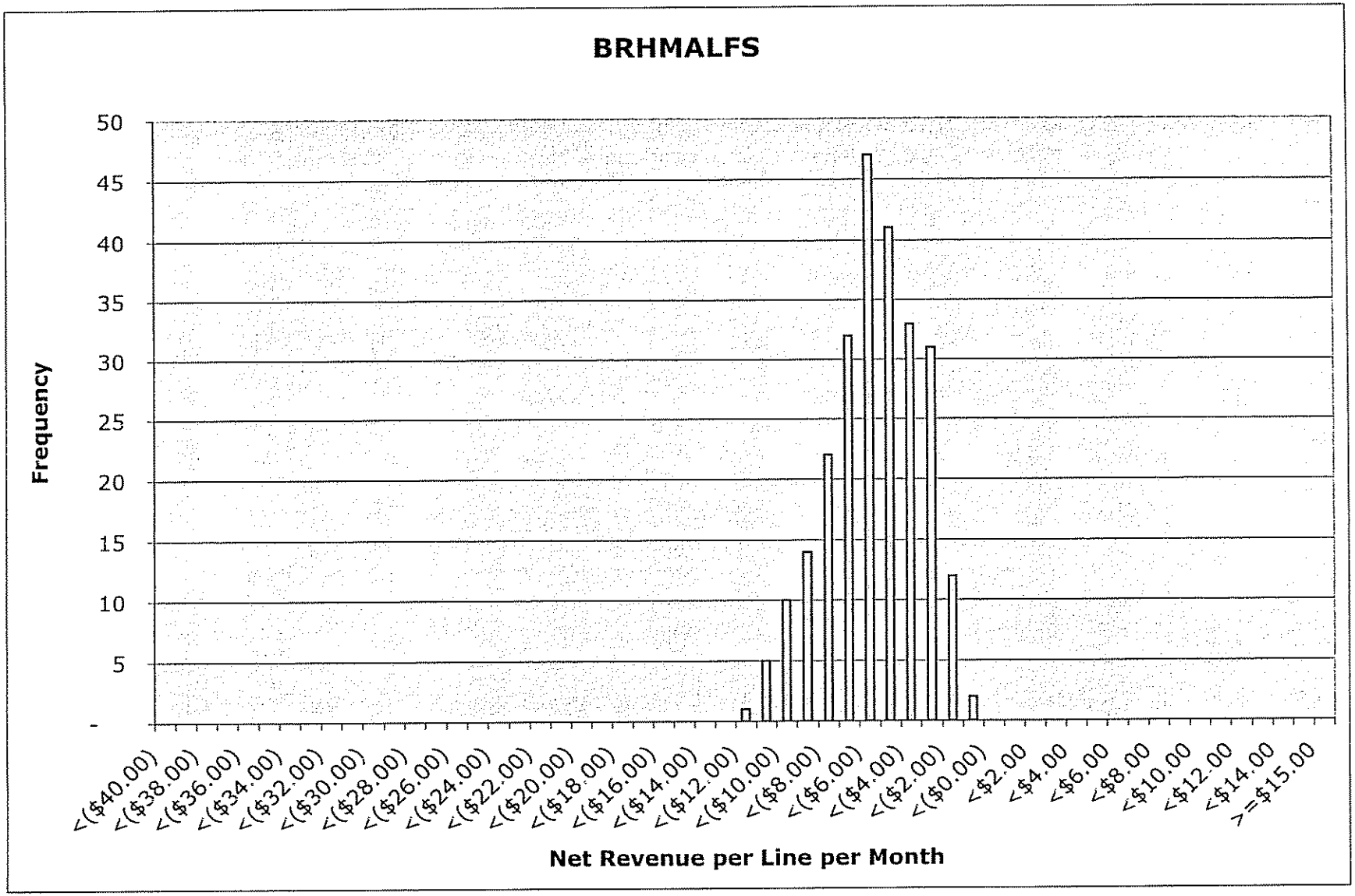
11/97 Panelist, NARUC Annual Convention, Boston, MA

11/00 Panelist, NARUC Annual Convention, San Diego, CA

EXHIBIT 2

PROPRIETARY AND CONFIDENTIAL
BEING FILED WITH THE PSC UNDER SEAL

EXHIBIT 3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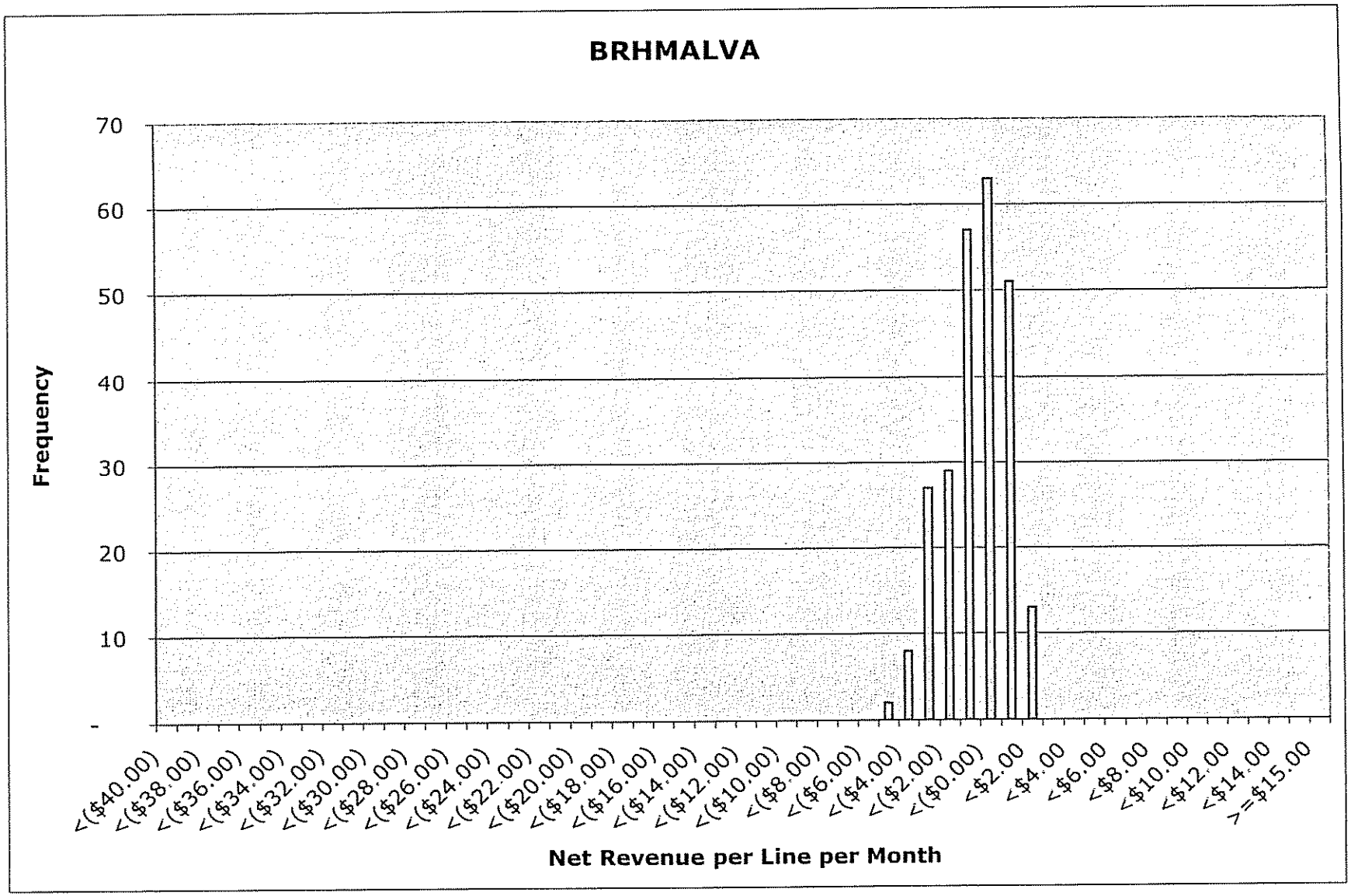
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Net Revenue per Line per Month

PUBLIC VERSION

BEFORE THE ALABAMA PUBLIC SERVICE COMMISSION

In Re: Implementation of the Federal Communications Commission's Triennial Review Order (Phase II – Local Circuit Switching)	))))	Docket No. 29054

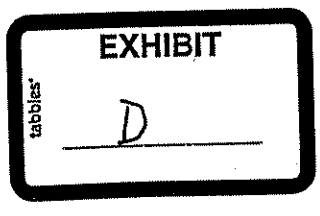
DIRECT TESTIMONY OF

James Webber

On behalf of

MCIMETRO ACCESS TRANSMISSION SERVICES, LLC AND MCI WORLDCOM COMMUNICATIONS, INC.

January 20, 2004



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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James D. Webber and my business address is: QSI Consulting, 4515 Barr Creek Lane, Naperville, Illinois 60564.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by QSI Consulting as a senior consultant within the firm's Telecommunication Division. QSI is a privately held consulting firm that provides consulting services to a diverse group of clients within the regulated utility industries including, for example, competitive local exchange carriers, long distance carriers and energy service providers.

Q. PLEASE PROVIDE A SYNOPSIS OF YOUR EDUCATIONAL BACKGROUND AND RELEVANT WORK EXPERIENCE.

A. I earned both a Bachelor of Science degree in Economics (1990) and a Master of Science degree in Economics (1993) from Illinois State University. I have approximately 12 years of experience in the regulated utility industries, with the last 10 years specifically focused on competitive issues within the telecommunication industry.

Prior to accepting my current position with QSI Consulting, Inc., I was employed by ATX/CoreComm as the Director of External Affairs. In that capacity, my responsibilities included: management and negotiation of interconnection agreements and other contracts with other telecommunications carriers; management and resolution of operational

impediments (including, for example, the unavailability of shared transport for purposes of intraLATA toll traffic or continual problems associated with failed hot cut processes) arising from relationships with other carriers; management of financial disputes with other carriers; design and implementation of cost minimizations initiatives; design and implementation of legal and regulatory strategies; and, management of the company's tariff and regulatory compliance filings. I was also involved in the company's business modeling as it pertained to the use of Resale services, UNE-Loops and UNE-P.

Before joining CoreComm, I was employed by AT&T from November 1997 to October 2000 where I held positions within the company's Local Services and Access Management organization and its Law and Government Affairs organization. As a District Manager within the Local Services and Access Management organization I had responsibilities over local interconnection and billing assurance. Prior to that position, I had served as a District Manager – Law and Government Affairs where I was responsible for implementing AT&T's policy initiatives at the state level.

Prior to joining AT&T, I was employed (July 1996 to November 1997) as a Senior Consultant with Competitive Strategies Group, Ltd. ("CSG"), a Chicago-based consulting firm that specialized in competitive issues in the telecommunications industry. While working for CSG, I provided expert consulting services to a diverse group of clients, including telecommunications carriers and financial services firms.

From 1994 to 1996, I was employed by the Illinois Commerce Commission ("ICC") where I served as an economic analyst and, ultimately, as manager of the Telecommunications Division's Rates Section. In addition to my supervisory responsibilities, I worked closely with the ICC's engineering department to review Local Exchange Carriers' – and to a lesser extent Interexchange Carriers' ("IXCs") and Competitive Local Exchange Carriers' ("CLECs") -- tariffed and contractual offerings as well as the supporting cost, imputation and aggregate revenue data.

From 1992 to 1994, I was employed by the Illinois Department of Energy and Natural Resources where I was responsible for modeling electricity and natural gas consumption and analyzing the potential for demand side management programs to offset growth in the demand for, and consumption of, energy. In addition, I was responsible for analyzing policy options regarding Illinois' compliance with environmental legislation.

A more detailed discussion of my educational and professional experience can be found in **Exhibit JDW-1,** attached to this testimony.

Q. ON WHOSE BEHALF WAS THIS TESTIMONY PREPARED?

A. This testimony was prepared on behalf of MCImetro Access Transmission Services, LLC and MCI WORLDCOM Communications, Inc. (collectively, "MCI").

II. PURPOSE AND SUMMARY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of this testimony is: (1) to describe numerous network operational problems CLECs would be required to address if they were moved to a UNE-L service delivery method in Alabama; and (2) to discuss steps the Alabama Public Service Commission ("Commission") should take to address these problems. The FCC concluded that economic and operational barriers associated with the "hot cut" process used by Incumbent Local Exchange Carriers ("ILECs") justify a national finding that requesting carriers are impaired without access to Unbundled Local Switching ("ULS") when attempting to serve the mass market. *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, and Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01- 338, 96-98 & 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36 (rel. Aug. 21, 2003) ("*TriennialReview Order*" or "*TRO*") at ¶ 476). The FCC also described numerous operational factors, including, for example, issues related to ILEC unbundling performance, collocation and the lack of processes and procedures facilitating the transfer of loops from one CLEC's switch to another CLEC's switch that it believed could add to the impairment faced by CLECs attempting to serve the mass market without access to ULS.

Q. BEFORE SUMMARIZING YOUR TESTIMONY, DO YOU HAVE ANY GENERAL COMMENTS?

A. Yes, I do. UNE-P has achieved a certain level of success in becoming a tool for mass market competition in large part because (1) a host of talented people and an enormous number of resources (agency resources, CLEC resources and ILEC resources alike) were dedicated to its development as a commercially viable delivery platform over a period of many years (with the last four years exhibiting the most focused efforts) and (2) because UNE-P involves the end-to-end lease of ILEC facilities, UNE-P provides CLECs access to the customer's loop in much the same manner as that available to the ILEC.

UNE-L currently requires the disconnection of an end-user's loop facility from one carrier's switch and, when successful, the near simultaneous re-connection to another carrier's switch. Thus, UNE-L presents more challenging operational, technical and network hurdles than UNE-P. Based on the industry's experience with UNE-P over the past several years, it is not realistic to expect that these challenges can be overcome by July 2004. Further, overcoming the operational challenges imposed by UNE-L will be all the more difficult because the Commission no longer has the 271 "carrot" to hold out as an incentive to garner cooperation in the resolution of technical issues. Similar to our experience with UNE-P, it is more logical to assume that the operational and technological issues giving rise to impairment will be resolved over time, and true loop portability – as described throughout this testimony - will become a reality only

with the guidance and oversight of the Commission and proper incentives for the ILECs' cooperation.

Q. PLEASE SUMMARIZE THE REMAINDER OF YOUR TESTIMONY.

A. Before MCI can rely on a UNE-L deployment strategy, issues pertaining to loop provisioning, loop facilities, collocation, transport and Enhanced Extended Links ("EELs") must be first be resolved, to say nothing of the economic issues addressed in Dr. Bryant's testimony or the specific customers impacting issues addressed in Ms. Lichtenberg's testimony. For purposes of clarity I have summarized these issues below:

(1) Loop Provisioning Issues:

> The ILECs' hot cut processes are intensively manual. Not only is the actual cutover of the loop done by hand, but much of the communication back and forth between the carriers is done by telephone or email. The cumulative effect of managing a mass migration of the embedded base of UNE-P customers to UNE-L, and, simultaneously, coping with substantially increased volumes day in and day out, month in and month out, can be expected to overwhelm an already fragile process that is not as effective as the process used to support mass market customers via the UNE-P. The need to manage multiple provisioning scenarios, such as CLEC-to-CLEC migrations, migrations involving line splitting, and EEL migrations, would only make matters more difficult, and early indications are that the ILECs, especially BellSouth, intend to completely ignore such scenarios altogether. Solutions to all of these issues must be in place and tested before UNE-L can be said to be a viable mass market delivery platform.

(2) Loop Facilities:

> ILECs have consistently resisted unbundling end user loops that are provided over Integrated Digital Loop Carrier ("IDLC") technology, claiming that such unbundling is impossible, infeasible or inferior to other solutions. And, instead of working toward

resolution of operational issues involved with such unbundling, they have consistently offered up other alternatives such as moving customer loops to spare copper facilities or placing them on to Universal Digital Loop Carriers ("UDLC"). These workarounds are typically time consuming, expensive and fraught with technological deficiencies resulting in unbundled loops being provided to CLECs that yield inferior performance from the customer's perspective (*e.g.*, limited "dial –up" modem capabilities and/ or DSL capabilities).

These workarounds comprise the ILECs' first and second choice alternatives to unbundling IDLC. BellSouth is deploying IDLC technology with increasing frequency, thereby exacerbating the problems on a going-forward basis. For example, IDLC is deployed to serve in excess of 60% of the end users in some central offices ("COs"). In fact, approximately one quarter of all UNE-P lines in Alabama are currently served over BellSouth IDLC facilities.

(3) Collocation/Transport Complexities

A workable UNE-L architecture requires the CLEC to procure and place numerous telecommunications assets for purposes of aggregating and transporting UNE loops from the ILEC's CO to its own switching facility. Many of these facilities such as loop aggregation equipment can be purchased and managed by the CLEC itself, while others like collocation, transport and EELs are likely to be leased from the ILECs and managed consistent with interconnection agreements and tariffs. The Commission should consider that both of these types of facilities are unique to a UNE-L architecture and are not required either by the ILECs in serving their own retail customers, or by a CLEC relying on UNE-P. Thus, the operational processes and resultant costs of procuring, placing and managing these facilities are over and beyond those incurred by the ILECs or by a CLEC using UNE-P. This is important to understand because the additional complexity associated with procuring and managing these facilities is not only important from a perspective of operational impairment (in some circumstances), but must also be considered for purposes of economic impairment.

Additionally, the availability and extent to which such services are currently deployed in relationship to the mass market must be considered when addressing impairment from an operational

standpoint, particularly if the ILECs' policies, procedures and abilities are limiting factors.

Dr. Bryant's testimony speaks to the economic impact of these collocation and transport facilities and their relationship to economic impairment. My testimony describes the need for those facilities and the extent to which costs associated with those facilities are unique to a UNE-L delivery strategy.

Q. BASED ON THESE ISSUES, WHAT DO YOU RECOMMEND?

A. Below is a non-exhaustive list summarizing steps I believe the Commission should take to minimize, if not eliminate, issues giving rise to operational impairment in the geographic markets throughout Alabama.

1. Hot Cuts
   a. The Commission should approve, test and implement a *Mass Market Hot Cut* process, as described in this testimony, which is designed to address ongoing carrier-to-carrier migrations. This process should be seamless, timely and economically practicable. Moreover, it should not exclude critical order types such as CLEC-to-CLEC migrations and UNE-P to UNE-L or EEL provisioning scenarios.
   b. The Commission should approve, test and implement a *Transitional Batch Cut* process that is sufficient to transition the embedded base of UNE-P customers to UNE-L while simultaneously managing increased daily volumes similar to those experienced with UNE-P over the past 12 to 24 months.
   c. The Commission should require carriers to employ automated processes that can minimize the level of coordination and communication required to facilitate hot cuts between carriers.
   d. The Commission should require carriers to use existing and emerging technologies to minimize manual intervention in the hot cut process.

2. Loops
   The Commission should require that unbundled loops - regardless of whether end-user facilities are currently provided on IDLC systems - be provided on a timely basis without the necessity of "changing" the facilities over which current connectivity is

presently provided unless spare copper facilities are readily – and economically – available such that end user service quality will not be diminished in any sense after having received services via an unbundled loop.

3. Collocation and Transport

The Commission should open and continue proceedings to monitor performance related to the implementation and provisioning of collocation, transport and related services. To the extent that issues pertaining to such performance limit CLECs' ability to provide services, backstop measures and dynamic impairment findings should be implemented expeditiously.

4. EELs

The Commission should implement EEL provisioning guidelines that assure that CLECs are able to purchase DS0 level loops in combination with transport, multiplexing, and concentration as described in this testimony. Moreover, such EELs should be integrated into the Mass Market Hot Cut and Transitional Batch Hot Cut Processes.

Q. TO WHAT EXTENT DOES MCI UTILIZE UNE-P IN ALABAMA?

A. MCI is currently serving ***** ****end-user lines via UNE-P in Alabama from**** ***** separate BellSouth wire-centers.

Q. IS MCI CURRENTLY ABLE TO SERVE ITS EMBEDDED CUSTOMER BASE THROUGH A UNE-L STRATEGY?

A. Setting aside questions regarding the economic practicability of serving residential and smaller business customers via UNE loops in Alabama - a topic Dr. Bryant addresses in his testimony - MCI cannot currently reach its customer base throughout most of the state. As is clearly demonstrated on the map contained in confidential Exhibit JDW-2, MCI's local customers are spread throughout much of the state and MCI is only collocated in ***** ***** of

BellSouth's wire centers. Without collocation or some other method of physically accessing customer loops, such as EELs coupled with a seamless hot cut process capable of handling large volumes of both inbound and outbound customer movement, MCI cannot offer services to most of its current, or embedded, base of customers absent access to unbundled local switching. MCI is currently dependent on ULS to serve the mass market in Alabama.

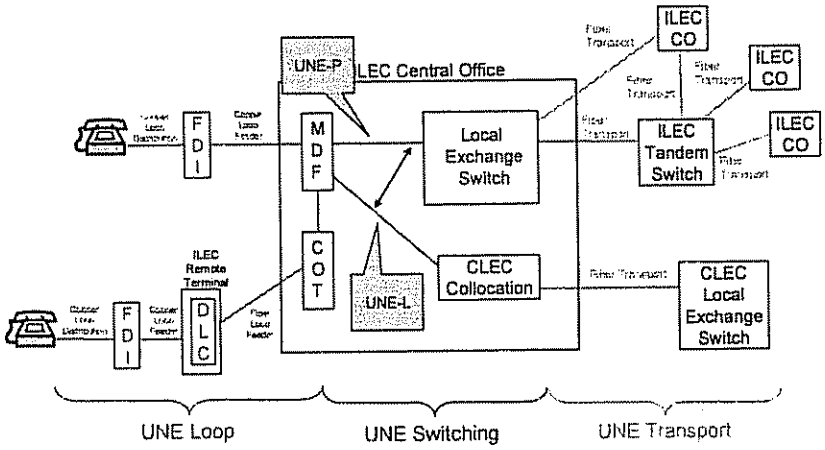
III. BELLSOUTH'S HOT CUT PROCESSES ARE INADEQUATE AND LEAD TO IMPAIRMENT

Q. THERE ARE A NUMBER OF ISSUES IN THIS PROCEEDING RELATED TO HOT CUTS. PLEASE DESCRIBE THE HOT CUT PROCESS AND EXPLAIN WHY THESE ISSUES ARE IMPORTANT.

A. The term "hot cut" describes the near-simultaneous disconnection of a working loop from a port on one carrier's switch and the reconnection of that loop to a port on a different carrier's switch, without any significant out-of-service period. A hot cut must also include some type of notification made to the appropriate number administrator informing the administrator that the customer's telephone number is now assigned to a different carrier, thereby allowing the customer to receive incoming calls at his or her existing telephone number. In a hot-cut scenario, regardless of whose switch the customer is moving from, and to, the ILEC must perform two manual wiring activities at the main distributing frame ("MDF"): (1) pre-wiring and (2) the actual loop cutover.

During the pre-wiring stage the technician places a jumper between the CLEC tie facility connecting the CLEC's collocation cage to the ILEC CO, and the customer loop. The jumper is terminated at the tie facility but not at the loop side. When the cut is scheduled to begin, the jumper that is connected to the loop side of the existing loop/port arrangement is disconnected and the jumper connected to the receiving CLEC's tie facility is terminated in its place. This completes a circuit between the CLEC facility in its collocation cage and the customer's loop, thereby accomplishing the cut. As discussed above, Local Number Portability ("LNP") translation activities are typically involved with this type of transaction and have traditionally been the responsibility of the receiving carrier. The diagram below provides a high level depiction of the process described above.

UNE-P to UNE-L HOT CUT



Q. PLEASE BRIEFLY DESCRIBE THE HOT CUT PROCESSES OFFERED BY BELLSOUTH PRIOR TO THE EFFECTIVE DATE OF THE TRO.

A. It is my understanding that BellSouth had implemented two "flavors" of hot cuts prior to the FCC's *TRO*. The company's "individual" hot cut process is designed to address requests pertaining to individual customer accounts where the affected lines are terminated at the same location. Another process, referred to as a "project" hot cut, was designed to address line counts of fifteen or more at a single end user customer location. Whereas the individual hot cut process is designed to work without up front negotiations and project management, the project hot cut process – as the name implies – requires up front negotiation and does not adhere to typical provisioning intervals. And, following the FCC's announcement of its *TRO*, BellSouth released a third process it describes as a "batch" hot cut process. It provides CLECs the ability to order hot cuts on a batch basis so long as the batches include homogenous loop types within a single wire-center.

Q. PARAGRAPH 488 OF THE FCC's *TRIENNIAL REVIEW ORDER* DIRECTS STATE COMMISSIONS TO APPROVE BATCH HOT CUT PROCESSES TO BE IMPLEMENTED BY ILECS. ARE THESE PROCESSES DIFFERENT FROM THE EXISTING PROCESSES?

A. Yes, they should be significantly different. These new processes – once approved, implemented and tested – will serve two separate but related purposes. MCI recommends that the Commission implement two flavors of hot cut processes that address the FCC's requirements that a "seamless, low-cost batch cut process for switching mass market customers from one carrier to another" be

approved which, when implemented, will allow CLECs an opportunity to compete effectively in the mass market. (*TRO at* ¶ 487.) The first flavor, to which MCI refers as the ***Transition Batch Hot Cut Process,*** should be implemented to effectuate a transition of customers off of UNE-P and onto UNE-L in large quantities, or "batches." This facet of the process should be capable of operating at volumes sufficient to migrate the embedded UNE-P base of customers to UNE-L. A variant of this process should be approved and implemented such that CLECs are able to compete effectively for mass market customers on an ongoing, day-to-day basis both prior to and after a massive transition to UNE-L based facilities should such a migration occur in the future. For purposes of clarity, MCI refers to this daily process as a ***Mass Market Hot Cut Process***. This version of the hot cut process would be used, for example, during the period beginning five months after an Order by a state public service commission containing a finding of "no impairment" in certain geographic markets, to address daily order volumes currently supported by UNE-P.

If an effective, permanent process is not established, CLECs will remain impaired in their ability to address the mass market, for all of the reasons cited in the *TRO*. Moreover, the Commission should ensure that hot cut processes are not only "identified" and "documented" but that they are actually tested and implemented, prior to contemplating whether a finding of non-impairment in the absence of ULS is appropriate.

Q. GENERALLY SPEAKING, WHAT ARE SOME OF THE MAIN ISSUES THE COMMISSION SHOULD CONSIDER WHEN DETERMINING THE PROCESS THAT SHOULD BE EMPLOYED TO PERFORM BATCH HOT CUTS?

A. In addition to the numerous issues described in Ms. Lichtenberg's testimony, MCI's concerns regarding ILEC hot cut process can generally be categorized as follows: (1) workability; (2) availability; (3) costs; and (4) scalability. As of September 2003, BellSouth provided 174,899 UNE-P lines to CLECs in Alabama, growing at the rate of approximately 7,179 lines per month.[1] In markets where CLECs, including MCI, choose to serve their mass market customer base via UNE-L, a hot cut would be required to support each newly won customer, as well as the daily churn and the migration of existing UNE-P based customers to UNE-L *en masse*. The current systems and processes to accommodate this substantially increased volume of hot cuts in a timely manner without customer service interruption are critical. Using existing processes, manual intervention will be required for each loop cutover. In other words, a technician will be dispatched to accommodate the frame manipulation for every single loop that must be transitioned from one carrier to another. This is especially troubling because the ILECs have accomplished very few UNE-L hot cuts in a commercial setting and almost none on a mass markets basis.

[1] Growth is based upon BellSouth's Supplemental Response to AT&T Interrogatory No. 55 as well as the FCC's table in Selected *RBOC Local Telephone Data Dec 2002.xls*, located at http://www.fcc.gov/wcb/iatd/comp.html .

Q. PLEASE EXPLAIN YOUR CONCERNS REGARDING "WORKABILITY."

A. A hot cut is, by definition, a coordinated effort on the part of the ILECs and the CLECs to "cut" a loop with minimal disconnection time (*i.e.*, the time in which the customer is connected to no switch or is connected to a switch where his or her telephone number is no longer active). For this reason, the ILECs' hot cut process must be specifically designed to minimize not only the time and cost specific to the ILECs' activities, but also the time and cost associated with the CLEC (both CLEC representatives and CLEC systems). In short, the ILEC's processes must work well not only for itself, but for the CLEC as well. For example, to the extent that CLECs require immediate notification following a completed cut, they should be able to receive such notification without the need to attend a conference call or wait for telephone calls or email. Immediate, electronic notification or web-based update procedures may be beneficial and "workable" for all parties.

Q. PLEASE EXPLAIN YOUR CONCERNS ABOUT "AVAILABILITY."

A. My understanding is that BellSouth intends to limit both the types of loops and the number of loops accommodated via its hot cut processes in a timely fashion. The company has stated during the course of hot cut workshops held in Alabama, Florida and Tennessee, for example, that it intends to limit the "batch" hot cut process such that: (1) CLEC-to-CLEC, UNE-L based migrations would not be available via the hot cut process; (2) lines currently involved in a "line splitting"

arrangement could not be cut via the hot cut process; (3) IDLC lines may not be available for timely provisioning via the hot cut process; (4) lines to be provisioned over EELs would not be available; and (5) requests for cuts comprised of higher line counts, sent in bulk, in most circumstances would not be available without significant "negotiation" and departure from existing provisioning and performance intervals. All of these restrictions, and others, substantially reduce the benefit provided by the hot cut process and could severely limit the efficiency with which CLECs could offer mass market services on a UNE-L basis. In short, hot cut processes with these types of restrictions do not overcome the FCC's national finding of impairment and should not be approved by state commissions toward that end.

Q. EXPLAIN YOUR CONCERNS WITH RESPECT TO HOT CUT COSTS.

A. After substantial time and effort, CLECs and state commissions waded through a plethora of ILEC data to conclude that UNE-P provisioning costs were closer to $1 for a customer migration, rather than the more than $100 originally advocated by ILECs across the country. The lesson to be learned from that experience is that ILECs have an overpowering incentive to dramatically exaggerate the costs associated with provisioning UNEs, and ILEC estimates tend to be based on cost studies that incorporate inefficient procedures or technologies. Likewise, their studies are generally defined by duplicative work steps, exaggerated estimated work times and many other errors all tending toward non-recurring charges substantially in excess of efficiently-incurred costs. MCI is concerned that

existing hot cut costs – to the extent they might be applied in the future – and any hot cut charges that may be determined in future proceedings will be inappropriately based on inefficient processes and technologies and, as a consequence, set at rates that are too high to allow for economic use of the UNE-L strategy for mass market customers. Dr. Bryant addresses these issues in greater depth.

Q. WHAT IS THE MAJOR OBSTACLE TO A SCALABLE HOT CUT PROCESS ON THE PART OF THE ILECS?

A. The major bottleneck in the hot cut processes typically advocated by ILECs exists at the MDF. BellSouth's batch hot cut process, for example, currently requires that each customer migrating to UNE-L must be rewired manually for purposes of connecting the UNE loop to the receiving CLEC's collocation cage. It is easy to envision multiple frame technicians working on a number of individual large business hot cuts concentrated on a given loop count; however, it is equally as easy to envision the potentially chaotic situation that could develop as a result of multiple technicians working simultaneously on a number of large residential single line hot cut projects involving loops appearing in random locations on the frame.

Q. ARE THERE ANY RECOMMENDATIONS YOU CAN MAKE TO THE COMMISSION REGARDING THE LONG TERM USE OF

TECHNOLOGY TO REDUCE LABOR TIMES, EXPENSES AND THE POTENTIAL FOR ERROR IN THE HOT CUT PROCESS?

A. Yes. If policy makers truly intend for UNE-L to replace UNE-P, such that tens of thousands of loops will be "ported" from one carrier to another on a regular basis, technology that automates the loop cutover function is the only way in which to reach that objective. Today's hot cut processes as briefly described above remain largely manual, or labor intensive, and can be made only marginally more efficient with system and process related improvements. While many of these processes and systems changes are important, and can lead to a more efficient, scalable and low cost hot cut methodology, they completely ignore the largest manually intensive step in the process, which is the work of the frame technician to actually cutover the loop.

Q. CAN YOU PROVIDE AN EXAMPLE OF THE SYSTEM OR PROCESS IMPROVEMENTS THAT CAN BE MADE FOR PURPOSES OF IMPROVING THE HOT CUT PROCESS?

A. Many ILECs are experimenting with electronic systems that help the two companies involved in a hot cut first schedule the appropriate activities, and then track the progress of the activities on a near-real-time basis. Verizon, for example, continues to develop its Wholesale Provisioning and Tracking System ("WPTS"), which provides progress toward addressing many of the coordination steps that until now have been performed manually. The intention of these systems is to mitigate the need for a three-way conference call that has generally

existed between the CLEC, the ILEC frame technician and an ILEC provisioning agent on the day of the cut (as well as other manual coordination steps). Further, these systems should help to reduce if not eliminate any up-front "negotiation" required between the CLEC and the ILEC in choosing the most efficient time for a given CLEC's hot cut orders to be provisioned. While at least two of the nation's ILECs, SBC and Verizon, have described electronic systems they are currently developing to further automate these non-frame processes, much still needs to be learned about these systems and their capabilities, such as whether they can operate in a system-to-system mode without monitoring by CLEC personnel, whether they can provide real-time access to work step completion information.

Q. DO THE SYSTEMS YOU HAVE DESCRIBED ABOVE ADDRESS MANUAL WORK STEPS ASSOCIATED WITH THE ACTUAL PRE-WIRING AND LOOP CUTOVER ACTIVITIES UNDERTAKEN BY A FRAME TECHNICIAN?

A. No, they do not. Though the pre-wiring and cutover functions undertaken by the ILECs' frame technician represent the most substantial barriers to scalability, reliability and cost reduction, the ILECs are not proposing some type of mechanization or automation of any of these functions within their hot cut process.

Q. DOES TECHNOLOGY EXIST THAT COULD BE USED TO AUTOMATE THESE FUNCTIONS?

A. Yes, for example, Verizon within its network today employs two of the most common types of technology that can be used to cutover a loop without manual intervention: (1) automated or mechanized frame systems and (2) electronic loop provisioning via GR-303. There are numerous vendors that provide these automated loop provisioning systems and each vendor describes in detail how its system can obviate the need for manual intervention in the cutover process. Examples of vendors that provide electromechanical and micro-relay type frame systems include NHC (www.nhc.com) and Simpler Networks (www.simplernetworks.com), respectively. There are others as well.

Q. PLEASE EXPLAIN THE LIMITATIONS CURRENTLY HINDERING THIS TECHNOLOGY FOR MORE WIDESPREAD USE.

A. Unless required to provide a UNE-L provisioning process approaching the automated efficiency of its retail or UNE-P-based services, the ILECs have little incentive to consider a technology that will make UNE-L a more viable option. Indeed, the local exchange carriers are motivated to delay the implementation of such advances, claiming they are unnecessary, too costly or impossible. As long as the ILECs can convince state commissions that the substantially limited manual processes, and the enormous non-recurring charges they may require, are sufficient, the ILECs have little incentive to automate the process or improve it to any degree beyond that required on a regulatory basis. Accordingly, the ILECs

spend the majority of their time pointing to the limitations of existing equipment rather than describing how it could be improved or trialing innovative alternatives.

Q. ARE PROBLEMS ASSOCIATED WITH HOT CUTS EXACERBATED WHEN THE MIGRATION IS FROM ONE CLEC TO ANOTHER?

A. The potential for increased complication for CLEC-to-CLEC cuts certainly exists. The amount of coordination, the information required and a number of other complicating factors are magnified with the introduction of CLEC-to-CLEC hot cuts as well as with myriad other scenarios (*e.g.*, hot cut from a line sharing CLEC to a CLEC handling both the broadband and narrowband application, moves from one CLEC to another wherein the receiving CLEC is serving via the ILEC's resale services and many others). In many of these scenarios, three or more individual carriers as well as providers of ancillary services such as NPAC and PSAPs, are required to cooperate, in real time, for purposes of accommodating this largely manual process. A failure at any one of the numerous steps can result in a customer losing service.

Q. SHOULD THE HOT CUT PROCESSES ULTIMATELY IMPLEMENTED BY THE COMMISSION EXCLUDE ANY PARTICULAR ORDER TYPES?

A. Generally, no. While there might be a legitimate reason to exclude some particular order type, such exclusion should be the exception, not the rule.

BellSouth, from what I have seen to date, appears to make such exclusions common place, thus mitigating the potential benefits of improved hot cut processes. To the extent their efforts are successful the process in which we are currently engaged is likely to be for naught.

Q. WHY IS THIS ISSUE IMPORTANT?

A. Customers served by UNE-P today are not homogeneous with respect to service type, customer type, or loop type. If BellSouth is successful in maintaining the numerous exclusions it has proposed concerning its hot cut processes, there will be a large number of existing UNE-P customers who will not be able to use the hot cut process. For example, absent the ability to use EELs and CLEC-to-CLEC migrations, it is likely that CLECs will be unable to utilize UNE-L to reach certain customers. Further, to maintain their customers over any length of time on a going-forward basis, CLECs need to be able to address efficiently all customer types represented in their market. That would include, at a minimum, all types of lines that are currently contained within their embedded base.

Q. CAN YOU PROVIDE AN EXAMPLE OF SUCH AN EXCLUSION AND EXPLAIN WHY IT WILL DISRUPT THE CLECS' BUSINESS IF MAINTAINED?

A. Yes, I can provide two of the most important examples. First, I understand that any line that is currently being used for both voice and data services (line sharing or line splitting) will be excluded from BellSouth's proposed hot cut processes.

Second, I also understand that BellSouth does not intend to support hot cuts where the receiving carrier is not collocated in the office where an end user's loop is terminated, meaning it will not allow for hot cuts to take place where EELs are used to gain access to end users.

By including these – and potentially other – prohibitions on the use of hot cut processes, BellSouth has substantially reduced the percentage of current and future customers' loops that could potentially benefit from such processes. Even with the improved hot cut processes advocated by the ILECs, CLECs will remain impaired when attempting to serve the mass market customers who happen to fall into these categories. The excluded customers could be well more than half of the mass market. Indeed, approximately 22% of all UNE-P based customers in BellSouth's Alabama territory are provided services via BellSouth's IDLC. This group of customers comprises approximately 38,478 lines. Moreover, to the extent the CLECs are denied a hot cut process for a substantial portion of the network seriously calls into question whether economies of scale will be sufficient enough to warrant any attempt by CLECs to implement UNE-L for the remainder of the market.

Q. DO THE ISSUES BRIEFLY OUTLINED ABOVE ADDRESS ALL ATTRIBUTES BY WHICH INCUMBENT LOCAL EXCHANGE CARRIERS' HOT CUT PROCESSES SHOULD BE EVALUATED?

A. No, they do not. Ms. Lichtenberg addresses a number of issues in her testimony. Likewise, MCI is continuing to participate in hot cut collaboratives around the country and is providing input and recommendations in any forum where provided the opportunity. Additionally, I address issues pertaining specifically to loops, collocation and transport later in this testimony. The list of properties to be included in the ILECs' upcoming ***Transition Batch Hot Cut*** and ***Mass Market Hot Cut*** processes will be expanded as a part of those discussions. Finally, MCI will comment more fully on this subject once it has had the opportunity to review the ILECs' testimony in these proceedings and final, detailed proposals concerning its various hot cut proposals.

IV. OPERATIONAL AND TECHNOLOGICAL ISSUES RELATED TO UNBUNDLED LOOPS GIVE RISE TO IMPAIRMENT

Q. PLEASE SUMMARIZE THE ISSUES RELATED TO UNBUNDLED LOOPS THAT GIVE RISE TO IMPAIRMENT

A. The majority of the operational issues I describe below results directly from the fact that in a UNE-L environment BellSouth will be separating network elements that it had combined to provide its own retail service in as efficient a manner as possible (and currently maintains in a combined fashion to provide UNE-P). The separation of loop from port generates at least the following two types of problems:

(1) Because ILECs, including BellSouth, generally insist that IDLC cannot be unbundled at the DS-0 (individual line) level, when required to

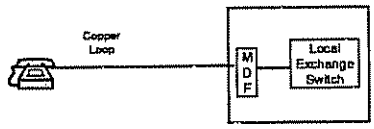
provide unbundled access they typically offer up alternate facilities (*e.g.*, UDLCs or home run copper loops). This is true even though that same customer, as a BellSouth retail end user, or even as an MCI customer served via UNE-P, may have been using the facility currently supporting his or her service for years. Worse yet, in many circumstances the facility to which the customer is reassigned is technologically inferior to the existing facility, or may simply be a facility that has been poorly maintained. Further, even the presumably simple process of reassigning a new facility is anything but simple, and can cause numerous service-impacting problems for the customer (problems the customer will undoubtedly identify with switching service providers) that would be avoided absent the need to "un-combine" the existing facilities used for retail or UNE-P service.

(2) As greater and greater numbers of competitors are moved from more efficient fiber-based services to copper-based services via the reassignment process described above, and the ILECs take advantage of the FCC's relaxation of retirement and maintenance requirements, the Commission will begin to see two networks develop and exhibit dramatically different levels of quality: the network used by the ILECs to serve their retail customers, and the network leased to CLECs by the ILECs (for purposes of competing against CLECs). As CLECs in this environment compete for limited numbers of inferior quality facilities (as BellSouth begins to retire their copper plant), situations of "no facilities" or facilities that will require costly repair before they can be used will become more prominent for the CLEC, thereby increasing the amount of time required to service any single customer, and increasing the CLECs' customer acquisition costs.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE COMMON ILEC LOOP ARCHITECTURES.

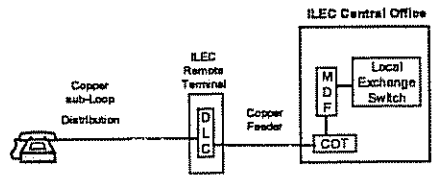
A. The diagrams below depict the three most common outside local loop serving arrangements.

(1) All-copper outside plant; no digital loop carrier (DLC)

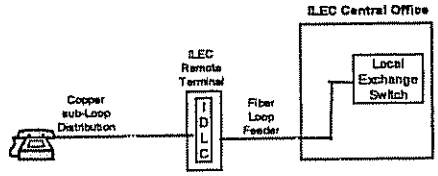


Local Voice Network

(2) Copper loop plant with UDLC



(3) Copper & fiber loop plant with IDLC



In the case depicted at the top portion of the diagram, the copper loop enters the CO where it is manually cross-connected from the vertical side of the MDF (generally considered the "outside plant" or OSP appearance) to the horizontal side of the frame (generally considered the "central office" or CO appearance).

The lower portion of the diagram shows two alternate serving arrangements that use more advanced "pair gain" platforms known as universal digital loop carrier (UDLC) on the left, and integrated digital loop carrier (IDLC) on the right. In a general sense, the purpose of both DLC applications is to aggregate the traffic of hundreds of individual customers and then multiplex those

individual signals into a single, higher bandwidth signal that can be transported more efficiently between the remote terminal ("RT") and the CO.

In the UDLC scenario, the copper loop that leaves the customer connects to a DLC RT which is likely located in the customer's own neighborhood. The electronics in the DLC convert the analog signals to a digital multiplexed format, and then send the digital signal over a feeder cable (copper in this case) to the CO. The cable terminates in the CO on a Central Office Terminal (COT), which converts the signal back to an analog format, at a voice grade (individual line) level, ultimately terminating at the MDF for manual wiring purposes. The MDF wiring appearances serve as a point of interface for the carriers' switching equipment (and as a point of interconnection for a CLEC).

In the second example, the loop from the customer connects to a remote terminal equipped with IDLC technology. With this application, the electronics in the RT convert the analog signals to a digital multiplexed format, and then send the digital signal over fiber feeder cable to the CO, terminating directly in the ILECs' digital switch without converting the signal back to analog. While certain fiber termination equipment actually exists between the RT and the switch, the point of the diagram is that equipment required to convert the signal from digital to analog, or any other format, is not required.

Q. CAN YOU EXPLAIN THE DIFFERENCE BETWEEN UDLC AND IDLC IN MORE DETAIL?

A. Older UDLC technology consists of an RT, a transmission (transport) facility to link the RT to the CO, and a COT. The RT aggregates the copper distribution pairs and performs conversions -- converting the customer's analog signal to a digital multiplexed format going to the CO, and (in the opposite direction) converting the digital signal from the CO to the customer to an analog signal. The transport carries the digital signal from the RT to the COT, and vice versa. The COT equipment converts the digital signal from the RT to an analog signal before the signal is terminated on the MDF and cross-connected to the switch port.

With the introduction of digital switches, an additional conversion was needed at the MDF. The signal that was converted from digital to analog at the COT had to be converted back to a digital signal by an Analog Interface Unit ("AIU") resident in the switch. The required digital-to-analog conversion at the CO was unnecessary, inefficient, and expensive, as more and more digital switches were deployed. IDLC addressed these inefficiencies by eliminating the need for the additional analog-to digital conversions at the CO. The analog signal originating at the customer's premises still is converted to digital at the RT, but no other analog/digital conversions are necessary as digital switches can accept the digitally formatted signal without conversion (something older analog switches could not do). Unlike traditional copper loops or UDLC lines, IDLC lines do not typically have termination appearances on the MDF.

Q. OTHER THAN THE LACK OF DIGITAL/ANALOG CONVERSION, ARE THERE OTHER ADVANTAGES SPECIFIC TO IDLC OVER UDLC?

A. The answer to that question depends on whether retail or UNE-P service is being provided, on the one hand, or UNE-L service on the other. With respect to retail and UNE-P, there are undisputable advantages to IDLC. For bundled services, IDLC allows local loops to be connected to a digital circuit switch more efficiently and cost effectively when compared to UDLC, because IDLC requires neither an analog conversion at the CO, nor the AIU line card at the switch, nor manual MDF wiring. As a result, compared to today's IDLC technology, older UDLC systems require unnecessary investment for digital-to-analog and analog-to-digital conversion equipment and MDF wiring in the CO.

To the extent that IDLC has advantages over UDLC and the ILECs continue to insist that they will not unbundle IDLC systems for use by their CLEC competitors, these advantages accrue only to retail and UNE-P services that rely on the combined nature of the IDLC system.

Q. HOW DO THE INCUMBENT LOCAL EXCHANGE CARRIERS CURRENTLY PROVISION UNE LOOPS WHEN THE EXISTING, BUNDLED LOOP FACILITY IS PROVIDED OVER IDLC?

A. I understand that in the majority of circumstances, the ILECs, including BellSouth, bypass the IDLC system and transfer the loop to an all-copper pair, if one is available, or use a UDLC serving application. Either procedure requires CO and outside plant rewiring to complete the new circuit from the MDF to the

customer and provides the CLEC (and the end user customers) with a very different facility than that it enjoyed when receiving service from the ILECs (and would likely enjoy again if the customer returned to the ILECs).

Q. HOW DOES THIS CHANGE OF FACILITIES TAKE PLACE?

A. The following diagram taken from Telcordia Notes on the Network Issue 4 section 12.13.2.1 provides an illustrative example of the two "work arounds" described above. (See Figure 12-33)

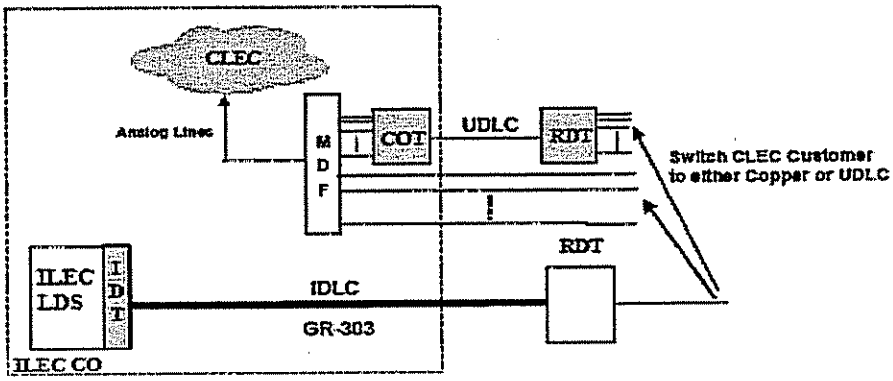


Figure 12-33. IDLC Unbundling - Bypass the IDLC System

Q. UNDER THE COPPER SCENARIO DESCRIBED ABOVE, DO EITHER THE INCUMBENT LOCAL EXCHANGE CARRIER OR THE CLEC NEED TO DISPATCH TECHNICIANS FOR LOOP INSTALLATIONS?

A. Technicians are involved with CO work in this scenario. And, in most cases technicians also are dispatched to the RT and even to the end-user premise in some instances to change facilities. In addition, in some situations, CLECs also must visit the customer's premises to change or validate wiring and test customer

equipment. In comparison, a UNE-P environment involving an "as is" or "as specified" migration does not typically require the ILECs or the CLEC to dispatch technicians to the CO or field.

Q. DO THESE UNBUNDLING METHODS IDENTIFIED ABOVE IMPAIR THE CLECs?

A. Absolutely. Clearly the CLEC faces both technical and provisioning disadvantages with either work around identified above. The process almost invariably entails additional provisioning time and costs, and the result is often an inferior facility. Likewise, all of these difficulties and increased costs appear to the customer to be a direct result of choosing a competitor's service. The ILECs' customer who is currently being served by an IDLC (a growing probability) is more likely to convert to a CLEC if the transition is quick and seamless, but not if the new service is technologically inferior and takes an extended period of time to provision.

Further, Section 12.13.3 of Telcordia Notes on the Networks (SR-2275, Issue 4, October 2000) which is entitled "Unbundling Issues Associated with UDLC and IDLC Systems" states that UDLC contributes to multiple problems including (a) increased dial tone delay, (b) degradation of on-hook transmission services, such as caller ID, (c) degradation of signal quality as a result of multiple A/D and D/A conversions and (d) reduction in analog modem operation speeds due to the number of A/D conversions.

Q. CAN YOU EXPLAIN THIS LAST ISSUE – REDUCED MODEM SPEED – IN GREATER DETAIL?

A. Microsoft's Windows 2000 support website explains that: "there can be only one analog connection between your modem and the host computer" if a PC modem is to support a V.90 dial-up connection capable of operating at speeds up to 56 kilobits per second (kbps), making full use of the capacity available.[2] Where end users are taken off IDLCs and unbundled loops provisioned via UDLC, such loops will necessarily include multiple A/D conversions and modems operating on those loops will, therefore, be incapable of supporting a V.90 dial-up protocol. Instead, modems will drop to a V.34 protocol, which is limited to 33.6 kbps. BellSouth's *Loop Technology Deployment Directives* corroborates this conclusion that modem speeds for circuits on universal carriers will be lower than those on IDLC. Clearly, unbundling such loops and placing them onto UDLC facilities will hinder performance when compared to an ILECs', and specifically BellSouth's, retail or, UNE-P based, services.

Additionally, it is unclear whether the ILECs' provisioning of these lesser capable loops is consistent with the FCC's loop unbundling rules. FCC Rule 51.319(a)(2)(iii) states:

> When a requesting telecommunications carrier seeks access to a hybrid loop for the provision of narrowband services, the incumbent LEC may either:
>
> (A) Provide non-discriminatory access, on an unbundled basis, to an entire hybrid loop capable of voice-grade service (***i.e.***,

[2] See Exhibit JDW - 3.

equivalent to DS0 capacity), using time division multiplexing technology; or

(B) Provide non-discriminatory access to a spare home-run copper loop serving that customer on an unbundled basis.

(Emphasis added)

Q. CAN THE COMMISSION HELP TO ADDRESS THE OPERATIONAL IMPAIRMENT ISSUES YOU HAVE DESCRIBED ABOVE?

A. Yes. But addressing these issues will require diligent efforts on the part of the Commission as well as the ILECs. The only way to ensure CLECs are not impaired is to ensure they have access to the same facilities the ILECs use to serve its end-user customers and UNE-P providers use to provide their services. In the case of IDLC, that can only be accomplished by unbundling the IDLC technology in an electronic (seamless, no dispatch) manner that provides the CLEC with access to individual customer circuits at a digital level. Short of achieving this solution, it is clear that CLECs will continue to be impaired in the marketplace without UNE-P because they will be saddled with less effective facilities to be used in competing for the very same end user customers.

Q. CAN IDLC BE UNBUNDLED DIGITALLY AS YOU DISCUSS ABOVE?

A. Yes, despite arguments to the contrary, it is technically feasible to unbundle IDLC in a digital format without losing the inherent "integrated" advantages enjoyed by the ILECs' bundled products. Indeed, the FCC in its *Triennial Review Order* noted:

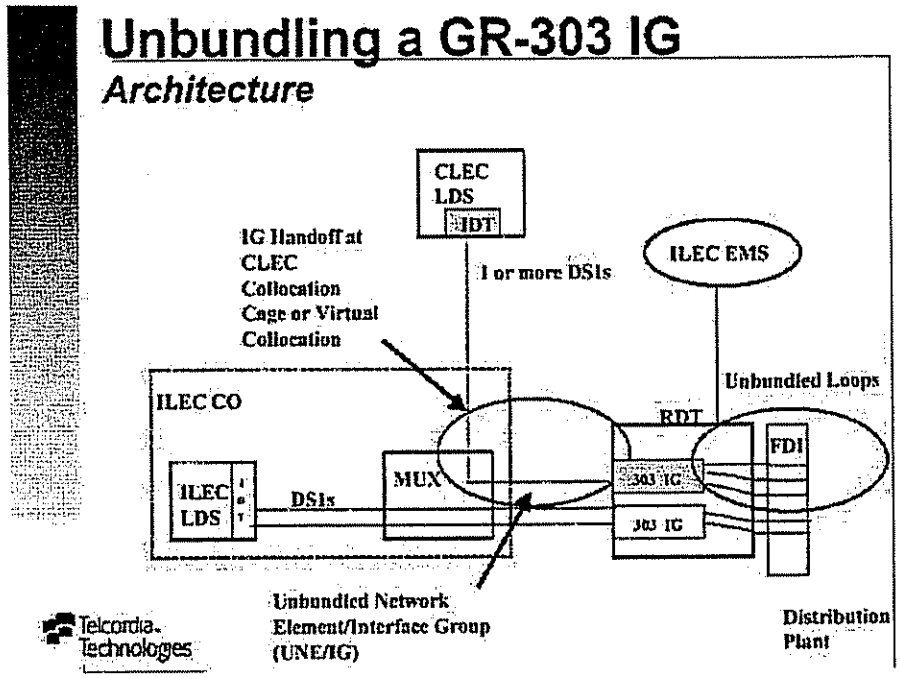
> "We recognize that it *is* technically feasible (though not always desirable for either carrier) to provide unbundled access to hybrid loops served by Integrated DLC systems."[3]

The most advanced IDLC systems engineered and deployed today (GR-303 compliant) have that capability. Bellcore (now Telcordia), which developed the GR-303 interface, describes at least two methods by which GR-303 compliant IDLC can be unbundled electronically without requiring a dispatch.

Q. PLEASE DESCRIBE THOSE METHODS.

A. One such method entails the establishment of separate interface groups (IGs) at the IDLC remote terminal so that a distinct IG is assigned to a CLEC and passed through a multiplexing device in the CO for purposes of accessing individual lines at the DS0 or DS1 level. This unbundling strategy has been discussed for years by industry bodies, and has been supported by Telcordia in numerous symposiums. The following diagram depicting how this process would work was constructed by Telcordia and provided to the industry in one of its GR-303 symposiums.

[3] *Triennial Review Order*, ¶ 297, footnote 855 (emphasis added).



Source: Telcordia's GR-303 Access Symposium binder, Tab 4, August 11, 1999

Q. DO OTHER METHODS OF UNBUNDLING IDLC EXIST?

A. Yes, Telcordia also describes another method of sharing GR-303 Interface Groups between the ILEC and the CLEC, using a sidedoor port on the ILEC's digital switch for purposes of accessing individual DS0s for transfer to the CLEC's switch. The diagram below shows the use of a GR-303 Interface Group sharing the ILEC's and CLEC traffic where all CLEC traffic is routed through a sidedoor port, supporting a DS1 or DS0 unbundling scenario. This drawing is also taken from Telcordia documentation, this time from Telcordia's most recent issue of

Notes on the Network, a leading source of engineering documentation relevant to today's telecommunication network.[4]

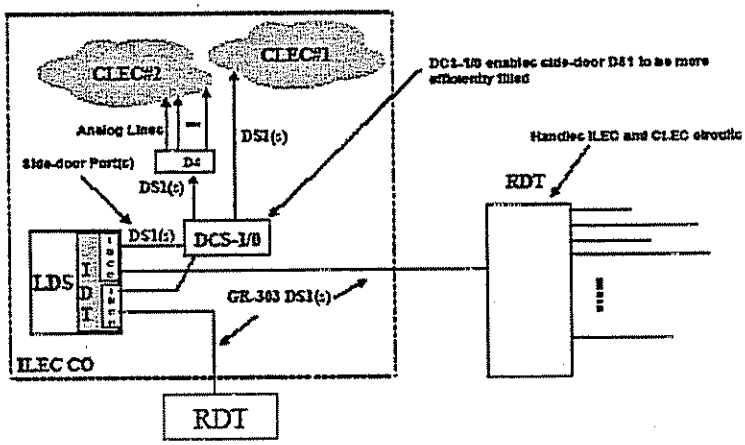


Figure 12-36. IDLC Unbundling Using Sidedoor Port

In the scenario above, unbundled CLEC loops are provisioned as non-locally switched circuits within the IDLC system. Telcordia describes this application as follows:

> "While the digital system cross-connect ("DCS"), DCS-1/0, is shown in the figure, it is not a requirement of this architecture. The advantage of using a DCS-1/0 is realized if the CLEC is not fully utilizing a DS1 from the ILEC local digital switch (LDS) to the CLEC, and multiple switch modules with individual digital control units (IDCU) are used by the ILEC. If a DCS-1/0 is placed between the LDS DS1 sidedoor port and the CLEC DS1s, it would permit full utilization of the sidedoor LDS/IDCU hardware by enabling CLEC DS0s to be rearranged in the DCS-1/0 and placed on the individual CLEC DS1s."

(See *Notes on the Networks* at Section 12-56).

[4] Examples taken from: Telcordia Notes on the Networks, Issue 4, October 2000.

Q. IN ADDITION TO CLECS BEING ABLE TO GAIN ACCESS TO UNBUNDLED CIRCUITS, ARE THERE OTHER ADVANTAGES TO THIS TYPE OF DIGITAL UNBUNDLING?

A. Yes, there are. Not only would either of these methods provide a CLEC unbundled access to the same customer loops the customer enjoys today, without a technician dispatch, it would also mitigate (if not remove entirely) the need for manual intervention in the loop provisioning process. Because GR-303 IDLC systems are largely software driven, and do not rely on manual copper wire manipulation for purposes of cross-connecting the derived circuits they support, unbundled loops could be provisioned to a CLEC on an electronic basis, free of any costly or time consuming technician dispatch. This type of IDLC unbundling thus would go along way toward providing nondiscriminatory access to unbundled loops, and also toward removing impairment caused by the manually intensive and cumbersome hot cut processes supported by the ILECs. In short, this type of unbundling once implemented, tested and proven in a commercial setting, would be a major step toward removing the impairment currently faced by mass-market CLECs without access to unbundled local switching.

Q. ARE THERE COMPLEXITIES ASSOCIATED WITH UNBUNDLING IDLC IN THE FASHION YOU HAVE DESCRIBED ABOVE?

A. Yes, there are. Although unbundling IDLC is feasible, the work required to establish necessary processes and techniques to unbundle IDLC in this fashion in a commercial setting has never been undertaken in earnest by the ILECs. They

have been provided no incentive to support this type of process that will only serve to enhance competition in the local market they currently dominate. As such, time and effort must be put toward making this technology a reality. Below I list a number of the obstacles that must be overcome on the road to efficiently unbundling IDLC for purposes of removing impairment:

A. Because each CLEC circuit requires a nailed up DS0, without additional software functionality or other processes, the ILEC may encounter blocking over the IDLC system as other circuits compete for DS0 channels.

B. The number of sidedoor ports that can be engineered varies depending on the LDS supplier and no standard appears to have emerged; hence, a concerted effort on the part of the ILEC may be required to standardize this technology for this purpose.

C. There is limited support in existing special services design systems and databases to support sidedoor port circuits. Again, this results primarily from the fact that the vendors design systems based on the needs of their primary customers and the incumbent local exchange carriers have had little incentive in the past to pursue this type of unbundling technology. This issue could undoubtedly be overcome by the vendors, if provided the proper incentive.

D. Other issues regarding security for an IDLC system providing multiple IGs to multiple CLECs need to be addressed. Likewise, numerous other details associated with sharing test resources, alarms, etc. would require additional development.

Q. WHAT CONFIDENCE CAN THE COMMISSION HAVE THAT IDLC CAN BE UNBUNDLED AND THAT THESE ISSUES YOU'VE IDENTIFIED ABOVE CAN BE OVERCOME?

A. Though these issues are real, and real effort will be required to address them, Telcordia developed the specifications for the GR-303 platform for unbundling, and has demonstrated its commitment to resolving the issues associated with

unbundling by providing the methods described above. In the final analysis, these types of issues are really no different than the many issues the industry has been addressing for several years concerning the evolution of the network and unbundling in general. The arguments the ILECs typically make in opposition to IDLC unbundling should remind the Commission of similar arguments the same ILECs made almost ten years ago when they argued that loops in general could not be unbundled without catastrophic repercussions to the entire network. Those catastrophic events failed to materialize and the same will undoubtedly hold true for IDLC unbundling.

Q. WHY IS THIS SUCH AN IMPORTANT ISSUE?

A. BellSouth's Loop *Technology Deployment Directives* call for increased use of fiber fed IDLC systems throughout the company's operating territories. Moreover, that same document calls for decreased reliance on copper facilities and, to an extent, calls for the retirement of such facilities. Thus, copper will become increasingly scarce. IDLC technology is currently employed to reach approximately one-quarter of the company's retail and UNE-P based end users. As a result, absent some resolution of the problems identified above, a significant percentage of the end users in some exchanges would likely experience either decreased service quality if they switch to a CLEC's service accommodated by UNE-L (because their loop will be changed to a less efficient technology), or they could experience significant delays in service availability from the CLEC as the ILECs "work around" the IDLC technology for purposes of providing an

alternative facility. In many cases customers will experience both problems when purchasing service from a CLEC in this manner, but would experience none of those same problems if they stayed with the ILECs, or returned to the ILECs' service. In either circumstance, the CLEC will be required to wait longer, and pay more to serve its customer when IDLC is present, absent the unbundling options I've described above.

Q. HOW CAN THE COMMISSION ADDRESS THIS ISSUE?

A. The Commission should find that CLECs are impaired without access to UNE switching until the IDLC issues have been addressed. Second, MCI urges the Commission to take a leadership role on this issue and require BellSouth to reuse existing loop facilities when requested to provide unbundled access to end-users and to provide a *digital* handoff to CLECs where IDLC is deployed. While the actual implementation of such a ruling will take time and collaborative effort, the rewards to customers are plentiful. A marketplace where each customer's loop is truly portable between carriers will provide real benefits.

Q. ARE THERE OTHER AREAS THE COMMISSION SHOULD FOCUS ON TO ADDRESS THE IDLC ISSUE?

A. Yes, there are. Until IDLC can be unbundled, and even thereafter for those facilities not served by IDLC, issues concerning accessing high quality, copper facilities will continue to exist. As fiber-based facilities continue to expand in use in the network, and as the ILECs continue to retire copper facilities that have been

replaced by those newer technologies, available, high quality copper loops will become less prevalent and "no facilities available" notices for UNE loop orders will become more common.

Q. ARE THERE STEPS THE COMMISSION CAN TAKE TO ADDRESS THE ISSUE OF AVAILABLE COPPER FACILITIES?

A. Yes, there are. The Commission can ensure that BellSouth maintains and retires facilities in a nondiscriminatory manner, thereby ensuring that maintenance and facility retirements are undertaken pursuant to proper engineering management, not at the control of competitive strategy. Indeed, the FCC's *Triennial Review Order* also encourages this type of non-discriminatory treatment:

> We require incumbent LECs to make routine network modifications to unbundled transmission facilities used by requesting carriers where the requested transmission facility has already been constructed. By "routine network modifications" we mean that incumbent LECs must perform those activities that incumbent LECs regularly undertake for their own customers.[5]

V. COLLOCATION AND TRANSPORT ISSUES MAY GIVE RISE TO IMPAIRMENT

Q. PLEASE INTRODUCE THIS ISSUE.

A. For MCI to move toward a mass market UNE-L deployment strategy, such a strategy must be operationally sound and economically viable. MCI will be unable to offer retail services when and where these requirements are not met. If MCI is to rely on the UNE-L strategy, MCI must be able to reach mass market customers utilizing collocation and transport services required to extend loops to

its switching facilities. Timely, efficient and low cost access to these elements is therefore critical.

Q. PLEASE BRIEFLY DISCUSS COLLOCATION AND HOW IT IS GENERALLY ACCOMPLISHED FOR PURPOSES OF ACCESSING UNE LOOPS.

A. In simplest terms, collocation within an ILECs' CO provides a CLEC two things required to support a UNE-L delivery strategy (1) an environmentally controlled space for purposes of placing transport equipment; and (2) access to the ILECs' MDF and potentially other frames for purposes of accessing UNE loops. The MDF is the central point of termination for virtually all voice-grade facilities and equipment, except IDLC, in a CO. At a very simplistic level, COs are designed such that any loop can be cross-connected to any individual CO electronic equipment (primarily the switch for purposes of completing basic local exchange services). This is accomplished in most cases by terminating all outside plant facilities to a defined "appearance" on the MDF. Likewise, the majority of CO electronic equipment is terminated to the MDF with a defined appearance. After all such equipment is terminated to the MDF in this fashion, connecting any two pieces of equipment for purposes of providing service can be accomplished by placing a cross-wire connection (a very labor intensive, "on site" process) between the two appearances for purposes of establishing an electrical circuit. All MDF appearances are electrical as opposed to optical, which are terminated

[5] *Triennial Review Order*, ¶632.

using different equipment. From a collocating CLEC's perspective, it is the MDF where the CLEC gains access to the outside plant network of the ILECs and it is from that location that the differences, and disadvantages to the collocating CLEC, become starkly clear.

Q. PLEASE DESCRIBE THE DISADVANTAGES THAT ACCRUE TO A CLEC THAT MUST COLLOCATE TO ACCESS A UNE LOOP.

A. BellSouth, for example, can access customers by performing a single manual step -- placing a jumper on the frame and thereby connecting its local switch with the customer's loop. The ILECs have developed their network over a period of more than 100 years with the specific intention of making this process as efficient as possible. Compare that simple process with the activities required by the CLEC to accomplish the same connection and the disadvantages become clear. For example, a CLEC must "build out" from its own CO electronic equipment to each ILECs' CO via collocation arrangements and physical transport facility placements, to reach the very same customer. There are obvious differences in the costs and activities associated with serving an end user customer between the ILECs, which perform a single step, and a CLEC that must perform multiple steps in addition to the step performed by the ILECs. Because the CLEC is required to perform these additional steps, and because these steps are costly (as discussed in MCI's economic testimony), the CLEC is – by definition – disadvantaged and therefore potentially impaired.

COLLOCATION RELATED IMPAIRMENT

Q. IS MCI IMPAIRED AS A RESULT OF ISSUES PERTAINING TO COLLOCATION?

A. Yes. As it stands today, MCI and many other CLECs do not currently have collocation arrangements (whether they be physical, cageless or virtual) that would be necessary to serve their UNE-P based mass market customers throughout the state. Indeed, MCI serves ***** ***** customer lines via UNE-P in ***** ***** different COs throughout Alabama. By way of comparison, MCI is collocated in only ***** ***** different BellSouth COs in Alabama, leaving ***** ***** BellSouth COs where MCI has today no way to reach its customers were the Commission to reach a conclusion that MCI was not impaired without UNE-P.

Q. CAN MCI UTILIZE EELS IN THE NEAR TERM TO SERVE THESE CUSTOMERS AND THEN BUILD OUT ITS FACILITIES TO THOSE OFFICES OVER TIME IF REQUIRED?

A. No. It is best to take those two issues one at a time. First, I discuss the EEL and its potential for assisting UNE-L carriers later in this testimony. Suffice it to say for now that much development work remains before EELs can be relied on to serve mass market customers. Second, it is likely that given proper time, financial wherewithal and potential profitability, MCI could build out its network and collocate in additional COs. However, if the Commission is not able to assist

the industry in overcoming the operational issues I have identified above with respect to a UNE-L delivery platform, there is little incentive for MCI to expend resources for collocation space that cannot be used to its fullest potential. Moreover, setting aside questions regarding the extent to which mass market customers can be economically served based on a network that includes collocation, it is currently unclear whether the CLECs as a whole will be able to obtain collocation arrangements in conjunction with the necessary transport facilities on a timely basis such that a migration can be supported. Keep in mind that in some Alabama wire centers numerous existing providers would need to procure incremental collocation space to serve their UNE-P customers. Further, collocation is a time-consuming process that requires CLECs to perform numerous complex functions and activities that are not required with ULS. Each step taken by the CLEC to reach the end user customer through collocation adds time and cost to the process and introduces a probability of error and customer dissatisfaction that is not associated with the ILECs' provision of service to the same customer on a retail basis or UNE-P.

Q. ASSUMING THAT MCI IS ABLE TO OBTAIN THE COLLOCATION ARRANGEMENTS NECESSARY TO SERVE EXISTING AND FUTURE END USER CUSTOMERS, WHAT OTHER ISSUES MAY CAUSE IMPAIRMENT?

A. It has been MCI's experience during the early stages of collocation that, even when space is ultimately made available by an ILEC, it is not uncommon to

experience significant delays before gaining access to the requested arrangements. To the extent that history repeats itself in an era where requests for collocation would obviously increase dramatically, CLECs could have difficulties reaching their customers without continued availability of UNE-P.

Q. HOW COULD THE COMMISSION REMEDY THESE POTENTIAL PROBLEMS?

A. To the extent the Commission enters at some future date a finding of no ULS impairment in this docket, the Commission should implement backstop measures related to collocation. Specifically, to the extent that a CLEC's ability to access its end users is delayed or otherwise impeded as a result of the ILECs' collocation performance, the Commission should mandate that ULS remain available to such carriers and in such locations where mass market customers are concerned. Moreover, to the extent that collocation is ultimately implemented in such a location, the CLEC should have the choice to leave any remaining customers on UNE-P until such time as a migration to UNE-L is operationally feasible.

TRANSPORT-RELATED IMPAIRMENT

Q. WHY HAVE YOU INCLUDED TRANSPORT IN THE SAME SECTION OF YOUR TESTIMONY AS COLLOCATION?

A. Transport and collocation are intrinsically related because of the functions they perform in a typical CLEC network. Availability of and access to collocation space is meaningless in a CLEC network unless the CLEC is able to reach the end

user customer's loop and extend it to its own switch via available transport capacity. Therefore, collocation without available transport, and vice versa, renders a UNE-L framework unusable. The Commission can consider the UNE-L framework to be a complex chain, each link of which must be procured, assigned, provisioned and maintained for customers to receive telephone services without disruption. Each link is subject to its own issues and complications, but each link is equally important to providing the ultimate service. Any single component of the service, including transport, has the potential to take the customer out of service if something goes wrong.

Q. DOES TRANSPORT POSE CHALLENGES IN AND OF ITSELF?

It certainly can. In a situation where CLECs are replacing UNE-P with UNE-L, they will rely heavily on their ability to use the ILECs' provided transport to extend individual customer loops to their own local switching facilities. Additionally, CLECs will be largely dependent on the ILECs' provided transport to originate and terminate local, intraLATA and interLATA traffic on behalf of their end users that, heretofore, had been carried within the ILECs' network via shared transport. Moreover, CLECs will likely use the ILECs' provided transport to establish 911 trunk groups and, to a lesser extent, OS and DA trunk groups. The sheer magnitude of blanketing a state or even a LATA with collocation arrangements and the transport facilities described herein can become daunting from a logistic and economic perspective. Given that these transport requirements are, for the most part, over and above those already required by a

UNE-P-based CLEC, the logistical and financial ramifications flowing from these requirements may lead to real operational and economic impairment.

Q. PLEASE DISCUSS SPECIFIC OPERATIONAL ISSUES THAT MAY GIVE RISE TO IMPAIRMENT.

A. It is unclear whether the ILECs' networks are currently set up to accommodate the CLECs' need for transport, both in terms of their need to extend loops (whether via collocation and interoffice transport arrangements or via EELs) to their own switches or in terms of meeting demand for the transport necessary to originate and terminate traffic. Thus, it is unclear whether the ILECs will claim that "facilities are not available," rendering a migration from UNE-P to UNE-L doubtful at best. Moreover, it is unclear whether the ILECs will claim that as a result of the *Triennial Review Order* it is not required to provide transport to requesting carriers in any or all of the circumstances identified above. Indeed, if the necessary physical connections cannot be obtained, or are substantially delayed, CLECs will be operationally impaired, if not physically precluded from accessing customers.

Q. PLEASE EXPLAIN IN MORE DETAIL YOUR CONCERNS RELATED TO TRANSPORT CAPACITY REQUIRED TO ORIGINATE AND/OR TERMINATE TRAFFIC.

A. When a customer is served via UNE-P, his or her local calls are routed just as any other ILECs' retail customer's calls would be routed. Thus, the majority of that

traffic is routed either within the same ILECs' switch (*i.e.*, an inter-switch call) or to another switch within the same local calling area, which is connected to the caller's originating switch via a direct-trunked connection. As local networks have evolved, trunk groups directly connecting end office switches within a local area have become more common and most ILEC networks today rely heavily on substantial levels of inter-office direct trunking. Absent these direct trunks, tandem switches would be required to route all inter-switch calls.

Q. WILL THESE TRAFFIC PATTERNS CHANGE IF CLECS ARE REQUIRED TO UTILIZE A UNE-L DELIVERY STRATEGY?

A. Yes. As described above, in a UNE-L strategy, the CLEC collocates equipment in the ILECs' CO and routes the customer's traffic back to its own switching facility. Hence, every call made by the customer (including local, long distance and other call types) is routed through the CLEC's switch now instead of the ILECs' switch. Likewise, the CLEC's switch is then interconnected with the ILECs' network either at the tandem (where the vast majority of connections occur at the tandem), or via direct connections to high volume end offices. The entirety of the customer's local traffic that is intended for the ILECs' customers (presumably the majority of the customers calls given that the ILECs will still serve the majority of local customers) must now pass through the interconnection trunks established by the CLEC and the ILECs, instead of through the ILECs' direct end office trunks as has historically been the case. In short, moving a significant portion of the local customer base from UNE-P to UNE-L will

immediately and dramatically change the traffic patterns for a substantial portion of the local traffic that currently rides the network. The implications of this fundamental shift in traffic patterns, and the additional trunking resources required to accommodate it, have not been thoroughly examined.

Q. DO THESE TRAFFIC PATTERN CHANGES HAVE THE POTENTIAL TO IMPAIR CLECS?

A. Absolutely. Even if (1) the hot cut process worked smoothly, (2) the CLEC could somehow gain unfettered access to the customer's loop, (3) collocation could be arranged and (4) the CLEC could transport the customer's traffic back to its own switch, the CLEC could still face severe, customer impacting problems if the ILECs failed to provide adequate trunking for purposes of terminating traffic originated on the CLEC network. Keep in mind that if all CLECs were required to transition from UNE-P to UNE-L, the ILECs would, in theory, be required to supplement their trunk groups used for interconnection (including where necessary tandem trunk ports and switching capacity) within 27 months. Unfortunately, where the ILECs failed to meet this benchmark, it would be the CLEC that would bear the brunt of the failure because it would be the CLECs' customers who would experience network busy signals when they attempted to place local calls to the ILECs' customer.

Q. HOW SHOULD THESE TRANSPORT ISSUES BE ADDRESSED?

A. The Commission should consider, at a minimum, initiating proceedings that examine and ultimately provide for EELs as discussed more fully later in this testimony; continued availability of transport; and backstop measures that provide for use of ULS for mass market customers where transport is not reasonably available.

VI. THE EEL AS A DS0 LOOP TRANSPORT TOOL

Q. CAN STATE COMMISSIONS WORK TOWARD REDUCING IMPAIRMENT THAT EMANATES FROM TRANSPORT-RELATED ISSUES?

A. Yes. There are a number of transport-related issues that should be addressed. For example, EELs could play a large role in overcoming issues contributing to impairment with respect to transport facilities, but EELs require continued development before they can be used to serve mass market customers. While there are areas where continued development on the part of the industry could mitigate the issues that lead to today's impairment, Commission involvement will be required to make any realistic progress in these areas. The Commission should undertake the following actions to address transport and its potential impact on impairment for mass market switching:

> (1) Monitor concurrent proceedings relative to loop and transport impairment to spot areas where the ILECs insists triggers have been met for mass market switching, yet the ILECs are attempting to remove the very UNE transport those triggering carriers use to provide the local services constituting the mass market switching trigger. In other words, if

the ILECs insist a carrier providing UNE-L service in a given area should constitute a mass market switching trigger, the Commission should take a close look at whether the ILECs are likewise attempting to remove their obligation to provide UNE transport to that very same carrier in the Loop/Transport proceeding. It is likely that the financial and operational issues associated with that "triggering" CLEC will change dramatically (perhaps even fundamentally altering its ability to continue to provide service), if that carrier can no longer purchase transport from the ILECs on a UNE basis.

(2) The Commission should work with the ILECs and CLECs alike to provide UNE transport arrangements aimed more directly at serving the mass market. EELs are a primary example. To this point, EELs have been used, to the extent the ILECs have provided them at all, primarily for high volume customers with substantial amounts of access traffic. Their use in supporting local services to multiple, individual customers requiring only a few DS0 circuits is largely untested. Nonetheless, EELs have the potential to substantially reduce the additional transport costs inherent within a UNE-L strategy, including notable sunk costs that could be avoided for collocation.

Q. PLEASE EXPLAIN YOUR POINT REGARDING THE POTENTIAL CONNECTION BETWEEN MASS MARKET SWITCHING IMPAIRMENT AND UNE TRANSPORT IMPAIRMENT.

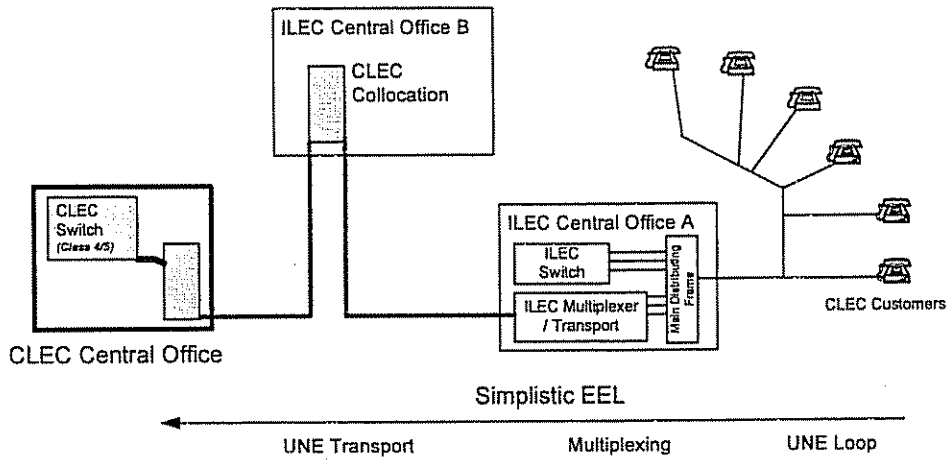
A. Because UNE transport is governed by the Telecommunications Act of 1996, and it is provided via interconnection agreements that are arbitrated by state commissions (with prices set consistent with TELRIC), changes in the availability of UNE transport for existing CLECs providing facilities based services could substantially alter those CLECs' capabilities to continue providing services. Removing the ILECs' obligation to provide UNE transport within a given market has the potential to affect the process by which those "triggering" carriers access transport capacity because (they would largely be left to fend for transport in a nascent wholesale transport environment or pay substantially higher ILECs'

special access rates. Removing that obligation also would affect the prices the triggering carriers would pay for such transport. A decision to remove UNE transport from the UNE list in a given market thus has the potential to change whether a carrier could be considered a "trigger" with respect to mass market switching impairment. State commissions should be cognizant of this relationship as they evaluate the evidence provided by the ILECs specific to impairment in both regards.

Q. PLEASE EXPLAIN YOUR SECOND CONSIDERATION ABOVE CONCERNING DS0-RELATED TRANSPORT ARRANGEMENTS BY DESCRIBING AND DEFINING AN EEL.

A. EELs are nothing more than a combination of unbundled loops, multiplexing in some cases, and unbundled interoffice transport. The diagram below provides a simplistic example where DS0 loops are cross connected to transport facilities (DS0, DS1 or higher depending on volumes) within the ILEC's CO for termination at the CLEC's collocation arrangement in a distant CO.

Simple EEL



The primary advantage of an EEL is that a competitive carrier using an EEL need not collocate in every ILECs' CO within which it chooses to serve a customer. By combining the unbundled loop with interoffice transport, the CLEC is able to "extend" the loop directly to its own CO. This is important for several reasons. First, EELs allow a carrier to build a customer concentration in an ILECs' CO before expending considerable resources to build a collocation cage. This not only speeds the competitive carrier's products to market without the need for an expensive and sometimes time-consuming collocation process, but also allows the carrier to make an economically rational decision about allocating finite collocation resources. Second, without the need for a costly collocation in each CO, the economics of a UNE-L strategy can be improved. Finally, and most importantly, EELs are another method by which competing carriers can attempt to gain economies of scale and scope similar to that of their primary competitors, the

ILECs. By spreading the costs of switching equipment over a greater number of customers, competitors can substantially reduce their average costs per customer.

Q. DOES THE INDUSTRY HAVE MUCH EXPERIENCE WITH EELS USED TO SUPPORT DS0-BASED SERVICES LIKE THOSE THAT WOULD BE REQUIRED TO PROVIDE MASS MARKET OFFERINGS?

A. Compared to the experience it has with UNE-P, no. In fact, in response to MCI Interrogatory 109, BellSouth stated that it is only providing 125 EELs comprised of DS0 loops and DS0 transport in the state of Alabama and that it is not providing any EEL arrangements that are comprised of DS0 loops and a higher level (DS1 or DS3 transport) in all of Alabama. This is highly troubling given the FCC's implicit (if not explicit) reliance on the EEL for purposes of making UNE-L a more attractive delivery mechanism in lieu of continued availability of UNE-P. While UNE-P is a proven mechanism by which to provide competitive services to mass market customers in an efficient and economical manner, UNE-L fueled by increased reliance on DS0-based EELs is almost completely untried and certainly unproven. Very little if any real world experience exists in support of the notion that EELs can actually be used effectively as a DS0 transport option on any scalable, commercially viable basis.

Q. WHAT SHOULD BE DONE SO THAT CLECS CAN USE EELS EFFECTIVELY IN A UNE-L ENVIRONMENT?

A. There are two primary EEL related objectives that will dramatically increase the likelihood that EELs in the future can be used effectively in a mass market scenario: (1) the Commission can ensure that any approved ILECs' Transitional Batch Hot Cut and Mass Market Hot Cut processes include detailed information and processes related to "cutting" a UNE loop to an EEL arrangement, as opposed to a the more restrictive proposal that collocation cages be the only location to which loops can be "hot cut"; and (2) the Commission should explore arrangements related to "concentrated" EELs. The Commission should elevate EELs to a more effective platform capable of enhancing the likelihood of UNE-L success, and therefore likelihood mass market customers will enjoy competitive alternatives from carriers other than those relying solely on UNE-P. After having affirmed, in this proceeding, the FCC's finding that CLECs like MCI are impaired without access to UNE switching functionality, the Commission should begin the process, via follow-up proceedings, of addressing those issues generating impairment. When evaluating ways to overcome the economic and operational issues related to transport, the Commission's time would be well spent exploring with the industry how EELs could work more effectively in a concentrated format, and the extent to which ordering and provisioning processes specific to concentrated EELs could be used to limit some of the economic and operational challenges that exist with providing transport via a UNE-L platform today.

Q. HOW SHOULD BELLSOUTH'S HOT CUT PROCESSES CHANGE TO ACCOMMODATE EELS?

A. In order to make EELs useful, CLECs should be allowed to submit an LSR that requests a loop housed in BellSouth Central Office A, for example, to be "hot cut" to a collocation facility (designated by a specific CFA) in Central Office B. When BellSouth receives such an order, it should provision on the CLEC's behalf, as part of its hot cut pre-wiring function, a DS0 EEL extending from Central Office A to the CLEC's CFA in Central Office B. All ANI testing should be completed via the DS0 EEL. On the day of the cut, BellSouth should cut the requested loop to the EEL so that CLEC dial tone from its collocation in Central Office B is provided to the customer's loop located in Central Office A.

Q. WHAT DO YOU MEAN BY "CONCENTRATED" EELS?

A. A concentrated EEL is nothing more than the same unbundled loop and interoffice transport combination, with the added capability to "oversubscribe" the interoffice transport element with unbundled loops in a greater than 1:1 ratio. Said another way, "concentrating" an EEL allows a CLEC to purchase far fewer interoffice transport circuits to serve the same number of customers, with little or no impact on its resulting quality of service.

Q. HOW WOULD THE CLEC ACHIEVE A CONCENTRATION RATIO GREATER THAN 1:1?

A. Next generation DLC equipment (primarily GR-303 compatible equipment) allows a carrier to concentrate traffic traveling between an RT and the integrated terminal on the CO switch. GR-303 compatible DLC allows a carrier to engineer

its outside plant facilities with 4:1, 6:1 or even greater levels of concentration, thereby substantially reducing the feeder capacity required to serve the same number of distribution pairs.[6] A concentrated EEL relies on this very same technology in extending the loop between COs.

Q. HOW WOULD A CONCENTRATED EEL BE DIFFERENT FROM THE USE OF EELS TODAY?

A. One of the primary disadvantages of a traditional EEL delivery platform is that a competitive carrier must purchase one interoffice transport circuit for every unbundled loop it purchases in a CO, which limits competing carriers to a 1:1 concentration ratio between loop and interoffice transport. This restriction significantly and unnecessarily increases the costs of EELs and contributes to an enormous waste of the ILECs' interoffice transport resources. A requirement that the ILECs provide EELs in a more efficient, concentrated manner can reduce transport costs by as much as 75% to 90% and reduce wasted capacity by the same amount.

Q. PLEASE EXPLAIN THIS POINT IN GREATER DETAIL.

A. A concentrated EEL arrangement could rely on the same GR-303 equipment discussed earlier. In simplest terms, to support a concentrated EEL arrangement, BellSouth could be required to place a GR-303 compatible RT in their CO, and

[6] See Newton's Telecom Dictionary, 19th Edition; Copyright 2003 Harry Newton, Published by Telecom Books, An imprint of CMP Media Inc., New York, NY 10010, page 361. IDLC systems can achieve concentration ratios of up to 44:1 depending upon traffic characteristics.

lease access to that GR-303 RT on a "per port basis" to individual CLECs. Using the GR-303 RT, individual CLECs could purchase individual DS0 UNE loops from the ILEC, cross-connect those loops to the RT, and purchase transport from the RT to their own CO switches (using GR-303 signaling). Assuming a CLEC chose to use 4:1 concentration in such an arrangement, the CLEC would, using the concentrated EEL in this fashion, be required to purchase 1/4 the interoffice transport capacity originally required (likewise using 6:1 concentration would allow the CLEC to purchase only 1/6 the amount previously required).

Q. PLEASE SUMMARIZE YOUR POSITION ON CONCENTRATED EELS.

A. The concentrated EEL typifies the manner by which newer technologies can be, and should be, used to reduce costs for all involved, in addition to providing a more efficient and scaleable competitive opportunity. There are few, if any technical barriers to a concentrated EEL arrangement and while operational issues will no doubt require some amount of development, the competitive advantages undoubtedly require the effort. Nonetheless, the ILECs will not offer concentrated EELs of their own volition (indeed, many ILECs have already refused to provide these arrangements in the fashion described above). State commissions therefore should open a docket to develop a workable concentrated EEL platform. Proceedings of this type should immediately follow the Commission's decision in this proceeding in an effort to mitigate those transport-related issues giving rise to the impairment that exists today with respect to unbundled mass market switching.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

BEFORE THE ALABAMA PUBLIC SERVICE COMMISSION

In Re: Implementation of the Federal Communications Commission's Triennial Review Order (Phase II – Local Circuit Switching)	))))	Docket No. 29054

DIRECT TESTIMONY OF

James Webber

Exhibit JDW 1

QSI CONSULTING
Market Solutions - Litigation Support

James D. Webber

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Senior Consultant, Quantitative Solutions, Inc

Professional Experience

CoreComm
Director - External Affairs — October 2000 to June 2003
Chicago, Illinois

AT&T
District Manager - Local Services and Access Management — February 1999 to October 2000
Chicago, Illinois

AT&T
District Manager - Law and Government Affairs — November 1997 to February 1999
Chicago, Illinois

Competitive Strategies Group, Ltd
Senior Consultant — July 1996 to November 1997
Chicago, Illinois

Illinois Commerce Commission
Manager, Rates Section - Telecommunications Division — March 1996 to July 1996
Springfield, Illinois

Illinois Commerce Commission
Economic Analyst, Rates Section - Telecommunications Division — March 1994 to March 1996
Springfield, Illinois

Illinois Department of Energy and Natural Resources
Research Project Coordinator — February 1992 to March 1994
Springfield, Illinois

Education

Master of Science, Economics - 1993
Illinois State University, Normal, IL.
Thesis: *An Analysis of the Effects of Fiscal Policy on Real Interest Rates in the United States: (1973-1990)*

Bachelor of Science, Economics - 1990
Illinois State University, Normal, IL.

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James D. Webber

Testimony Profile and Experience

Federal Communications Commission

File No. EB-01-MD-017
In the matter of CoreComm Communications, Inc. and Z-Tel Communications, Inc., Complainants v. SBC Communications Inc., Southwestern Bell Telephone Company, Pacific Bell Telephone Company, Nevada Bell Telephone Company, The Southern New England Telephone Company, Illinois Bell Telephone Company, Indiana Bell Telephone Company, Inc., Michigan Bell Telephone Company, The Ohio Bell Telephone Company, and Wisconsin Bell, Inc
On behalf of CoreComm Communications, Inc.

Florida Public Service Commission

FPSC Docket No.030851-TP
In re: Implementation of requirements arising from Federal Communications Commission's triennial UNE review: Local Circuit Switching for Mass Market Customers.
On behalf of MCImetro Access Transmission Services LLC and MCI WorldCom Communications, Inc

Georgia Public Service Commission

Docket No. 17749-U
In re: FCC's Triennial Review Order Regarding the Impairment for Local Switching for Mass Market Customers
On behalf of MCImetro Access Transmission Services, LLC MCI WORLDCOM Communications, Inc

Illinois Commerce Commission

ICC Docket No. 00-0700
Illinois Commerce Commission on its own motion -vs- Illinois Bell Telephone Company. Investigation into tariff providing unbundled local switching with shared transport.
On behalf of CoreComm Illinois, Inc.

ICC Docket Nos. 97-0516, 97-0601, and 96-0602
Illinois Commerce Commission on its own motion -vs- Illinois Bell Telephone Company; et al. Investigation into non-cost based access charge rate elements in the intrastate access charges of incumbent local exchange carriers in Illinois. Illinois Commerce Commission on its own motion Investigation into implicit universal service subsidies in intrastate access charges and to investigate how these subsidies should be treated in the future.
On Behalf of AT&T Communications of Illinois, Inc.

ICC Docket Nos. 96-0486 and 96-0596
Illinois Commerce Commission on its own motion Investigation into forward looking cost studies and rates of Ameritech Illinois for interconnection, network elements, transport and termination of traffic. Illinois Bell Telephone Company Proposed rates, terms and conditions for unbundled network elements.
On behalf of AT&T Communications of Illinois, Inc.

ICC Docket Nos. 95-0458 and 95-0531
AT&T Communications of Illinois, Inc. Petition for a total local exchange wholesale service tariff from Illinois Bell Telephone Company d/b/a Ameritech Illinois and Central Telephone Company Pursuant to

section 13-505 5 of the Illinois Public Utilities Act. LDDS Communications, Inc. d/b/a LDDS Metromedia Communications Petition for a total wholesale network service tariff from Illinois Bell Telephone Company d/b/a Ameritech Illinois and Central Telephone Company pursuant to Section 13-505 5 of the Illinois Public Utilities Act.
On behalf of the Staff of the Illinois Commerce Commission

ICC Docket Nos. 95-0201 and 95-0202
Illinois Bell Telephone company proposed establishment of separate rate elements for single line versus multiline business access line customers. Illinois Bell Telephone company proposed establishment of separate rate elements for directory assistance to business sand residence customers
On behalf of the Staff of the Illinois Commerce Commission

ICC Docket No. 94-0048
IntraLATA Presubscription Rule Making.
On behalf of the Staff of the Illinois Commerce Commission

ICC Docket Nos. 94-0096, 94-0117, and 94-0146
Proposed Introduction of a Trial of Ameritech's Customers First Plan in Illinois, et al.
On behalf of the Staff of the Illinois Commerce Commission

Indiana Regulatory Utility Commission

IRUC Cause No. 40571-INT-03
AT&T Communications of Indiana, Inc. TCG Indianapolis petition for arbitration of interconnection rates terms and conditions and related arrangements with Indiana Bell Telephone Company, Incorporated d/b/a Ameritech Indiana pursuant to Section 252(b) of the Telecommunications Act of 1996
On behalf of AT&T Communications of Indiana, Inc and TCG Indianapolis.

IRUC Cause No. 40785
In the matter of the investigation on the Commission's own motion into any and all matters relating to access charge reform and universal service reform including, but not limited to high cost or universal service funding mechanisms relative to telephone and telecommunications services within the state of Indiana pursuant to IC 8-1-2-51, 58, 59, 69; 8-1-2 6 ET. SEC. and other related state statutes, as well as the Federal Telecommunications Act of 1996 (47 U.S.C Sec. 151, ET. SEC.)
On behalf of AT&T Communications of Indiana, Inc

IURC Cause No. 40611
In the matter of the Commission investigation and generic proceeding on Ameritech Indiana's rates for interconnection, service, unbundled elements, and transport and termination under the Telecommunications Act of 1996 and related Indiana statutes.
On behalf of AT&T Communications of Indiana, Inc.

Michigan Public Service Commission

MPSC Case No. U-13796
In the matter, on the Commission's own motion, to facilitate the implementation of the Federal Communication Commission's Triennial Review determinations in Michigan
On behalf of Sage Telecom, Inc.

MPSC Case No. U-12622

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In the Matter of the application of Ameritech Michigan for approval of shared transport cost study and resolution of disputed issues related to shared
On behalf of CoreComm Michigan, Inc.

MPSC Case No. U-12465
In the matter of the application of AT&T Communications of Michigan, Inc., and TCG Detroit for arbitration of interconnection rates, terms and conditions and related arrangements with Ameritech Michigan Pursuant to 47 USC 252(b).
On Behalf of AT&T Communications of Michigan, Inc., and TCG Detroit.

MPSC Case No. U-11831
In the matter, on the Commission's own motion, to consider the total long run service incremental costs for all access, toll, and local exchange services provided by Ameritech Michigan.
On behalf of AT&T Communications of Michigan, Inc.

MPSC Case No. U-11743

MPSC Case No. U-11757

MPSC Case No. U-11448
In the matter of the application of the Michigan Exchange Carriers Association, Inc., for approval of a joint total service long run incremental cost study.
On behalf of AT&T Communications of Michigan, Inc. and MCI Telecommunications Corporation.

MPSC Case No. U-11280
In the matter, on the Commission's own motion, to consider the total service long run incremental costs and to determine the prices of unbundled network elements, interconnection services, resold services, and basic local exchange services for Ameritech Michigan.
On behalf of AT&T Communications of Michigan, Inc.

North Carolina Utilities Commission

In the Matter of: Triennial Review – UNE-P Address Implementation of Unbundling Docket No. P-100, Sub 133q Requirements of R-51 319 in Determining Principally the Continued Availability of Unbundled Local Switching for the Mass-Market
On behalf of MCImetro Access Transmission Services LLC and MCI WorldCom Communications, Inc

Public Utility Commission of Ohio

PUCO Case No. 02-579-TP-CCS
In the matter of the Complaint of CoreComm Newco, Inc , Complainant, V. Ameritech Ohio, Respondent.
On behalf of CoreComm Newco, Inc.

PUCO Case No. 00-942-TP-COI
In the matter of the further investigation into Ameritech Ohio's entry into in-region interLATA service under section 271 of the Telecommunications Act of 1996.
On Behalf of CoreComm Newco, Inc.

PUCO Case No. 00-1188-TP-ARB
In the matter of the application of AT&T Communications of Ohio Inc. and TCG Ohio for arbitration of interconnection rates, terms and conditions and related arrangements with SBC Ohio
On Behalf of AT&T Communications of Ohio, Inc.

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James D. Webber

PUCO Case No. 96-899-TP-ALT
In the matter of the application of Cincinnati Bell Telephone Company for approval of a retail pricing plan which may result in future rate increases and for a new alternative regulation plan.
On Behalf of AT&T Communications of Ohio, Inc.

PUCO Case No. 96-366-TP-ALT
In the matter of the complaint of AT&T Communications of Ohio, Inc., Complainant, V Ameritech Ohio, Respondent, In the matter of the implementation of substitute Senate Bill 306 or substitute House Bill 734 of the 121st General Assembly.
On Behalf of AT&T Communications of Ohio, Inc.

PUCO Case No. 96-922-TP-UNC
In the matter of the review of Ameritech Ohio's Economic Costs for Interconnection, Unbundled Network Elements, and Reciprocal Compensation for Transport and Terminations of Local Telecommunications Traffic.
On Behalf of AT&T Communications of Ohio, Inc

Public Service Commission of Wisconsin

PSCW Docket No. 2815-TR-103
Application of CenturyTel of the Midwest-Kendall LLC Requesting Public Service Commission to Approve Alternative Regulation Plan.
On behalf of AT&T Communications of Wisconsin, L.P. and TCG Milwaukee.

PSCW Docket No. 05-TI-174
Generic review of carrier performance and consumer benefits under alternative regulation.
On behalf of AT&T Communications of Wisconsin, Inc

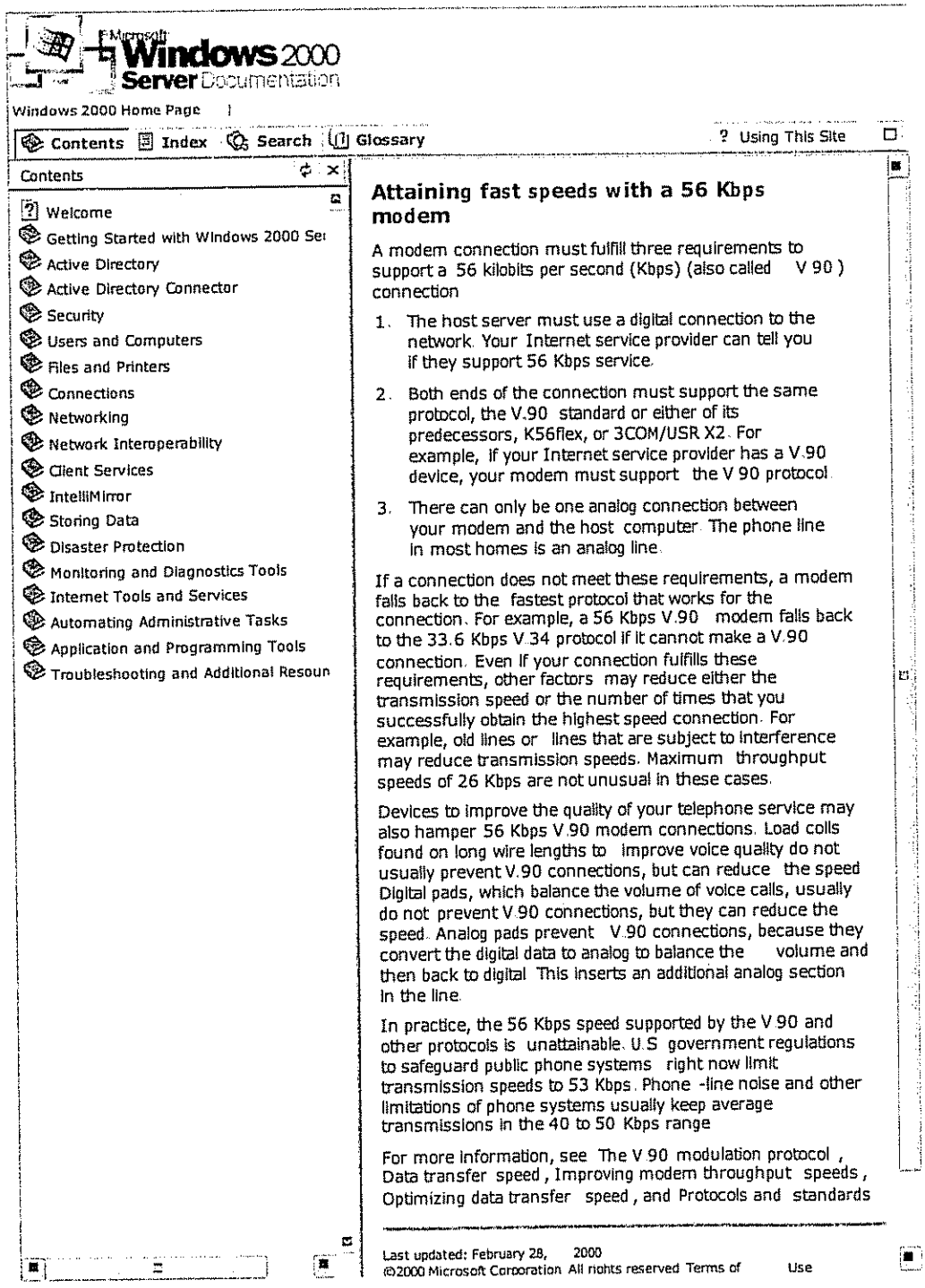
BEFORE THE ALABAMA PUBLIC SERVICE COMMISSION

In Re: Implementation of the Federal Communications Commission's Triennial Review Order (Phase II – Local Circuit Switching)	))))	Docket No. 29054

DIRECT TESTIMONY OF

James Webber

Exhibit JDW 3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Disaster Protection
Monitoring and Diagnostics Tools
Internet Tools and Services
Automating Administrative Tasks
Application and Programming Tools
Troubleshooting and Additional Resoun
Attaining fast speeds with a 56 Kbps modem
A modem connection must fulfill three requirements to support a 56 kilobits per second (Kbps) (also called V 90) connection
1. The host server must use a digital connection to the network. Your Internet service provider can tell you if they support 56 Kbps service.
2. Both ends of the connection must support the same protocol, the V.90 standard or either of its predecessors, K56flex, or 3COM/USR X2. For example, if your Internet service provider has a V.90 device, your modem must support the V 90 protocol.
3. There can only be one analog connection between your modem and the host computer. The phone line in most homes is an analog line.
If a connection does not meet these requirements, a modem falls back to the fastest protocol that works for the connection. For example, a 56 Kbps V.90 modem falls back to the 33.6 Kbps V.34 protocol if it cannot make a V.90 connection. Even if your connection fulfills these requirements, other factors may reduce either the transmission speed or the number of times that you successfully obtain the highest speed connection. For example, old lines or lines that are subject to interference may reduce transmission speeds. Maximum throughput speeds of 26 Kbps are not unusual in these cases.
Devices to improve the quality of your telephone service may also hamper 56 Kbps V.90 modem connections. Load coils found on long wire lengths to improve voice quality do not usually prevent V.90 connections, but can reduce the speed Digital pads, which balance the volume of voice calls, usually do not prevent V.90 connections, but they can reduce the speed. Analog pads prevent V.90 connections, because they convert the digital data to analog to balance the volume and then back to digital This inserts an additional analog section in the line.
In practice, the 56 Kbps speed supported by the V 90 and other protocols is unattainable. U.S government regulations to safeguard public phone systems right now limit transmission speeds to 53 Kbps. Phone -line noise and other limitations of phone systems usually keep average transmissions in the 40 to 50 Kbps range
For more information, see The V 90 modulation protocol , Data transfer speed , Improving modem throughput speeds , Optimizing data transfer speed , and Protocols and standards
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BEFORE THE ALABAMA PUBLIC SERVICE COMMISSION

In Re: Implementation of the Federal Communications Commission's Triennial Review Order (Phase II – Local Circuit Switching	))))	**Docket No. 29054**

DIRECT TESTIMONY OF SHERRY LICHTENBERG

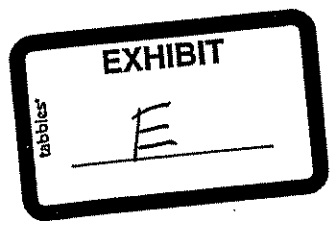
On Behalf Of

MCIMETRO ACCESS TRANSMISSION SERVICES, LLC

And

MCI WORLDCOM COMMUNICATIONS, INC.

January 20, 2004



Q. PLEASE STATE YOUR NAME, EMPLOYER AND TITLE.

A. My name is Sherry Lichtenberg. I am currently employed by MCI as Senior Manager, Operational Support Systems Interfaces and Facilities Development.

Q. PLEASE DESCRIBE YOUR BUSINESS EXPERIENCE.

A. I have twenty-two years of experience in the telecommunications market, fifteen years with AT&T and seven with MCI. I joined MCI in 1996 as a member of the initial team responsible for the development of MCI's local services products, both UNE-P and facilities-based. Prior to joining MCI, I held a number of positions at AT&T, including working in the General Departments organization, where I developed methods and procedures and billing and ordering systems for use by the Bell Operating Companies and later American Bell. I was Pricing and Proposals Director for AT&T Government Markets, and Executive Assistant to the President and Staff Director for AT&T Government Markets. I also held a number of positions in Product and Project Management. My current role with MCI includes designing, managing, and implementing MCI's local telecommunications services to residential and small business customers on a mass-market basis nationwide. I support both UNE-P product development and our testing and planning for facilities based competition via UNE-L. I have testified in numerous proceedings before the FCC and state public service commissions including multiple state 271 proceedings, network modernization proceedings and a variety of DSL proceedings. In addition, I have worked with the MCI carrier management and contracts teams to negotiate our interconnection agreements with the incumbents.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to address operational barriers to the deployment of mass markets UNE-loops. The discussion of operational barriers falls into two categories: network operational issues and customer impacting operational issues. My testimony addresses the customer impacting operational issues, while MCI's network operational testimony discusses the network barriers that exist today. Because MCI is providing mass markets service in BellSouth's service territory in Alabama, my testimony focuses on BellSouth, although much of my testimony also applies to CenturyTel of Alabama, LLC.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. After much work to develop interfaces and conquer operational problems, MCI launched residential local service in Alabama in 2002 and now provides local service to tens of thousands of Alabama consumers via UNE-P, the only service delivery method that has proved successful thus far in bringing local service to the mass market. MCI is now evaluating a move to a UNE-L service delivery method when and where it is economically and operationally feasible, because MCI would prefer to serve these customers whenever possible over its own facilities and because it wants to provide voice and DSL service using the same network. Today, installing a customer on UNE-L in mass markets volumes and transitioning from UNE-P to UNE-L are complicated and difficult processes, in large part because of the customer impacting operational problems that I discuss below. Such problems must be understood and resolved in the context of today's

multi-carrier market, both with respect to customer expectations and developing competition among carriers.

Today's customers have experienced relatively seamless migrations among long distance carriers, and increasingly among local carriers as well. They will judge their experience with UNE-L carriers by the same standards, and thus so should the Commission. Today's competitive landscape involves a number of carriers with significant consumer customer bases, so it is no longer sufficient just to consider whether BellSouth can effect a customer's initial migration from UNE-P to that same CLEC using UNE-L. Now the entire industry must be taken into account, because it is just as important that subsequent migrations from one CLEC to another be transparent to the customer. Unlike the 271 process, where the primary issue was BellSouth's ability to provide competitive carriers access to the systems and processes necessary to migrate customers from retail to wholesale services, this proceeding concerns whether customers can move freely among all carriers regardless of service delivery method. Competition cannot flourish unless customers can do so.

In this context, the operational issues I discuss below are critical. Those issues involve the extensive manual ordering and provisioning processes and multi-carrier coordination currently required for UNE-L migration, as well as the exchange of information concerning the databases for customer service records ("CSRs"), the Local Facilities Administration and Control System ("LFACS"), E911, the National Number Portability Administration Center ("NPAC"), the Line Information Database ("LIDB"), the Caller Name Database ("CNAM"),

Directory Listing/Directory Assistance ("DL/DA"), and printed directories. I also will discuss issues that must be addressed with respect to trouble handling. In addition to outlining these issues, I also have suggested approaches to addressing them, which should at least provide a starting point for resolution. Additional issues are certain to arise as MCI and other carriers gain experience with UNE-L, and thus the Commission will need to play a continuing role to ensure that all operational barriers to UNE-L implementation are addressed and resolved.

Moving existing customers from UNE-P to UNE-L (the batch hot cut process described by the FCC) is only one small piece of the new processes that will be required to maintain the level of competition in Alabama in a facilities-based world. Even if customers who are already served by a CLEC can be transitioned to a new carrier using a batch hot cut process – what then? How will customers continue to be able to migrate among other carriers as they do today with UNE-P?

Rolling access, whereby customers were acquired via UNE-P and then transitioned to UNE-L using batch hot cuts, would not solve these operational problems either. Rolling access would only address the initial migration from BellSouth to a CLEC, and not subsequent migrations between carriers. Moreover, rolling access would not address the operational issues I discuss below; indeed, it might exacerbate such problems, since these customers must first be provisioned on one service – and receive and activate one set of features – and then be provisioned on another, with potentially different features and the need to activate

them once again In the final analysis, there is no "silver bullet" that will solve all the operational problems involved in rolling out UNE-L to the mass market and particularly residential customers. As with UNE-P, these problems will have to be solved one at a time with the Commission's oversight and with the active involvement of all industry players.

In short, numerous customer impacting operational barriers currently render CLEC entry via UNE-L uneconomic throughout Alabama, and the Commission should so find. Upon reaching this conclusion (if not beforehand), the Commission should work with the industry to address that impairment so that the operational barriers that currently exist may be removed.

MCI's Alabama Local Mass Market Service

Q. WHY IS IT IMPORTANT FOR THE COMMISSION TO CONSIDER CLECS' EXPERIENCE IN ENTERING THE ALABAMA LOCAL CONSUMER MARKET?

A. A review of CLECs' experience to date with UNE-P should provide the Commission with a general understanding of the kinds of obstacles that must be overcome in developing and implementing a new service delivery method. And consideration of CLECs' fledgling efforts to implement UNE-L will provide insight into the real-world operational challenges that CLECs face when attempting to serve the mass market with their own switches. Further, CLECs' efforts to enter the Alabama local consumer market shed light on what consumers have come to expect when they migrate from one local service provider to

another. Understanding those consumer expectations is a key part of recognizing and addressing operational problems.

Q. WHAT IS THE DIFFERENCE BETWEEN UNE-P AND UNE-L?

A. UNE-P involves the leasing of the piece parts of BellSouth's network on an end-to-end basis. When a customer is migrated from BellSouth to a UNE-P CLEC, no changes are made to the physical facilities used to serve the customer. To date, UNE-P has been the only service delivery method that has enabled CLECs to serve residential and small business customers on a broad scale and will continue be the only way to provide such service for some time.

In contrast, UNE-L involves leasing the customer's loop, terminating that loop to a CLEC's collocation space in BellSouth's central office (assuming the CLEC has such a space), and transporting calls to the CLEC's switch from which the customer draws dial tone and receives local service. Migrating a customer from BellSouth today to a UNE-L CLEC requires the customer's loop to be "cut over" from the BellSouth switch to the CLEC's collocation equipment while the customer's service is still "live," thus giving rise to the term "hot cut." Hot cuts are required in all UNE-L scenarios, including when a CLEC migrates its own or another CLEC's UNE-P customer to UNE-L, or when a UNE-L customer moves from one CLEC to another, or even when a CLEC UNE-L customer is won back to BellSouth. Many steps in the cutover process are manual, which inevitably leads to customer outages and other problems that occur only rarely with UNE-P migrations. In addition, carriers must exchange critical information with each

other and third parties (for example the local number portability transaction), but the processes for doing so are far from seamless.

Q. PLEASE DESCRIBE THE PROCESS THAT LED TO MCI'S LAUNCH OF LOCAL MASS MARKET SERVICE IN ALABAMA.

A. That process was a long one, beginning with the passage of the Telecommunications Act of 1996 ("Act"). Although the Act required BellSouth to unbundle its network, a number of battles had to be fought before MCI could launch its local consumer service in Alabama. First of all, CLECs had to establish the right to use UNE-P, which took several years and two U.S. Supreme Court decisions. Second, the industry and the Commission undertook lengthy UNE pricing proceedings, in an effort to move UNE rates closer to the TELRIC standard required by the FCC. Finally, major changes taking several years were required to modify BellSouth's operations support systems ("OSS") to make it feasible to order and provision service using UNE-P in the volumes required to serve mass market customers.

UNE-L implementation will involve additional systems requirements and changes, including enhanced electronic provisioning processes to allow UNE-L orders to flow through BellSouth's systems, processes to implement seamless CLEC-to-CLEC migrations at high volumes, and coordination with non-ILEC systems such as the NPAC and the ALI database provider to ensure that customer migrations are completed in a timely and correct manner. Since outside organizations such as NPAC have not had to deal with mass markets customer migrations of the type seen with UNE-P, they are untested and potentially

unready for these changes, making the process of curing impairment all the more difficult.

Q. WHEN DID MCI LAUNCH ITS LOCAL CONSUMER SERVICE AND WHAT HAS ITS EXPERIENCE BEEN?

A. In April 2002 MCI launched "The Neighborhood built by MCI" in Alabama and a number of other states. Since then, MCI has expanded its local footprint and now serves tens of thousands of UNE-P lines in Alabama and more than 3.5 million nationally. The Neighborhood, which uses UNE-P, provides Alabama residential and small business consumers with packages of local, intraLATA and interLATA voice services, along with assortments of popular features.

Q. DOES MCI PLAN TO MOVE ITS LOCAL RESIDENTIAL AND SMALL BUSINESS CUSTOMERS TO ITS OWN NETWORK?

A. Yes, but only where it makes operational and economic sense to do so sense to do so. MCI currently is evaluating the use of UNE-L for its residential and small business customers. Once the problems with full-scale use of UNE-L described in my testimony and in MCI's network operational testimony are corrected (and the economic issues addressed in MCI's economic testimony are addressed), we can begin to make the transition from UNE-P to UNE-L. The timing and scope of the deployment will of necessity be limited not only by the resolution of operational and economic issues, but also by MCI's collocation and switch footprint and availability.

Q. WHY DOES MCI WANT TO TRANSITION CUSTOMERS FROM UNE-P TO UNE-L?

A. There are at least two reasons. First, MCI, like any carrier, would prefer to provide service using its own network as much as possible because doing so would allow MCI both to use its state-of-the-art network and to promote further innovation of its products and services through further development and deployment of new technology. Although UNE-P has been, and remains, critical to MCI being able to provide local residential and small business service in Alabama, UNE-P requires MCI to rely on its chief competitor, BellSouth, for network services. To the extent it is economically and operationally viable to do so, MCI would prefer to use its own network via UNE-L, to provide service to its customers.

Second, MCI must take into account the changes taking place today in the telecommunications industry. Telecommunications is gradually moving from an industry controlled by large monopolies to one with multiple carriers offering multiple services to a dynamic customer base. The trend in the industry is toward bundled services and IP-centric offerings that enable consumers to select one carrier that meets all of their communications needs. As MCI begins to roll out its broadband services to consumers, it only makes sense to integrate its broadband facilities with its voice facilities. Eventually, when voice over internet protocol ("VoIP") replaces traditional circuit switching as the technology of choice, it will be essential that MCI move off BellSouth's circuit switches and onto its own facilities. MCI is planning for that future while serving its more than 3.5 million mass markets customers today.

Q. WHERE WOULD MCI POTENTIALLY BE ABLE TO PROVIDE UNE-L SERVICE?

A. UNE-L requires the CLEC to have its own switch and to be collocated in the BellSouth central office where the loops of the customers it wants to serve are terminated. MCI will be able to provide UNE-L service only in areas where it already has deployed collocation equipment and local switches. MCI has been a facilities-based local exchange carrier in the large enterprise market for a number of years. MCImetro -- MCI's CLEC -- installed its first switch in 1995 and since then has installed local switches, collocations in BellSouth central offices and fiber rings in major metropolitan areas throughout the country. MCI uses these facilities (along with leased high capacity loop facilities or their equivalent) to provide competitive local exchange service to business customers today. Moving to UNE-L would enable MCI to take advantage of those facilities. MCI will use its network wherever and whenever it makes operational and economic sense to do so instead of constantly having to rely on, and do battle with, BellSouth for the nondiscriminatory use and correct pricing of its network. But MCI can do this for mass markets customers only when it can ensure that those customers will continue to have the same seamless migration experience that its UNE-P customers have today.

Q. DOES MCI INTEND TO USE UNE-L EVERYWHERE IT HAS MASS-MARKET CUSTOMERS?

A. No. I can't imagine that would happen. For one thing, there are many areas and even entire states where MCI does not have any facilities. And it is highly

unlikely that UNE-L will make economic and operational sense everywhere in every state, but that is an analysis that will be discussed in detail in the economic testimony being filed by MCI in this proceeding.

Q. WHAT IS THE SIGNIFICANCE TO THIS CASE OF MCI'S PLANS TO BEGIN TRANSITIONING CUSTOMERS TO UNE-L?

A. MCI's review of the potential for moving to UNE-L illustrates the fundamental point of the *Triennial Review Order*[1]: MCI and other CLECs have every incentive to serve customers over their own networks, and will do so where and when it makes operational and economic sense. They do not need to be forced to do so. Once the operational and economic barriers have been brought down, CLECs will move freely to a UNE-L strategy, something they cannot do today. The success of that transition will be the best evidence that CLECs are no longer impaired without access to BellSouth switching.

Q. WHAT WOULD HAPPEN IF COMPETITORS WERE REQUIRED TO MOVE TO UNE-L TODAY?

A. There would be chaos and consumers would be the ones hurt. The UNE-L migration process today is manually intensive and cumbersome with multiple points of failure that could result in delay, inability to receive calls and, worse yet, loss of dial tone for the consumer. Customer migration problems could lead to customers being "stranded" on a carrier's network, unable to move anywhere else.

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[1] *See In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carrier*, CC Docket No. 01-338, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking FCC 03-36 (rel. Aug. 21, 2003) ("*Triennial Review Order*" or "*Order*").

These and other operational barriers prevent CLECs from being able to meet customer expectations. Thus, if the transition to UNE-L were made prematurely, the progress that has been made toward a dynamic, competitive telecommunications market since the passage of the Act would be destroyed.

For UNE-L to be an acceptable service delivery method, it must allow competitors to meet and even exceed customers' expectations. In particular, migrations between carriers using UNE-L must be seamless and the systems and processes of the entire industry – BellSouth, CLECs and third parties – must be fully functional and capable of working together effectively. Today these systems and processes are highly manual and are untested in a mass market environment.

Q. ISN'T THE TRANSITION TO UNE-L SIMPLY A MATTER OF HOT CUTTING A LOOP FROM ONE LOCATION TO ANOTHER?

A. No, moving to UNE-L is more than hot cutting loops from the BellSouth Main Distributing Frame (MDF) to MCI's collocation. It includes developing the processes and systems necessary to ensure that the customer's E911 service is not interrupted or the data rendered inaccurate, to "port" his number to his new carrier (and to a second carrier when that is requested), and to resolve problems when they arise. And it requires that this transition take place without harming that customer and without limiting his competitive choices.

Q. HAS ANY CARRIER ATTEMPTED TO TRANSITION TO AND SERVE A LARGE MASS MARKET RESIDENTIAL CUSTOMER BASE USING UNE-L?

A. No. No carrier has yet attempted a broad-scale facilities-based approach for residential mass markets customers. Because this will be a new experience for the industry, many of the problems that arise will have to be worked out for the first time, which will add to the difficulty of creating workable solutions. To use UNE-L, CLECs will need to interconnect their networks with BellSouth's network in a much more integrated fashion than ever before. Beyond making the changes I describe below that are necessary to order and support UNE-L, "interconnection" in this sense also means that CLECs will need to physically connect their local networks with BellSouth's local network and switches on a broad scale to get access to BellSouth's loops to provide service to customers. It also will require capacity upgrades to MCI's and other carriers' E911 trunks and additional trunking to BellSouth's tandem switches. For example, today a significant number of calls between BellSouth and CLEC customers in the same rate center are completed in BellSouth's switch. Once customers are moved to UNE-L, however, these calls will need to route to the BellSouth tandem switch to be completed, potentially increasing the need for tandem switching capacity. MCI's Network Impairment testimony describes these issues in greater detail.

Q. WILL THE TRANSITION TO UNE-L INVOLVE MORE THAN SIMPLY MIGRATING MCI'S EXISTING UNE-P CUSTOMER BASE?

A. Yes, definitely. The move to facilities-based competition is not simply about customers moving from UNE-P to UNE-L, or even from the incumbent monopoly to the CLEC. Customers also will move from one CLEC to another. Those CLECs may be UNE-L CLECs, UNE-P CLECs, resellers or cable companies.

Today, customers return to BellSouth and migrate back and forth between UNE-P and resale CLECs on a daily basis. Some customers also try to migrate from facilities-based providers to UNE-P CLECs, but this process is almost completely manual and far from seamless. The key point here is that MCI's move to facilities-based competition will not be limited to establishing and maintaining the relationship between MCI and BellSouth; it involves the entire industry -- MCI, BellSouth, and every other CLEC offering service in the state. And in reality, it involves more than that. As I will discuss in greater detail later, the move to facilities-based competition will have implications for third parties that provide necessary but ancillary services, such as E911 providers and the LNP provider.

Triennial Review Order

Q. DID THE FCC'S TRIENNIAL REVIEW ORDER RECOGNIZE THAT THERE ARE OPERATIONAL BARRIERS TO UNE-L?

A. Yes. Although I am not a lawyer, I have reviewed the *Triennial Review Order* issued by the FCC with respect to the operational issues it addresses, and the FCC clearly recognized that operational barriers exist to UNE-L competition today. The FCC made a national finding of impairment with respect to unbundled local switching at the mass market level based on the existence of these operational barriers. (*Order* ¶ 419.) In essence, the FCC realized that competitors are currently unable to move to a UNE-L service delivery method with the processes and procedures that currently exist. Further, the FCC concluded that, for local competition to exist, competitors must have access to unbundled local switching

until the existing operational and economic issues with UNE-L are fully identified, investigated and adequately resolved.

Q. DID THESE OPERATIONAL BARRIERS LEAD TO THE FCC'S FINDING OF IMPAIRMENT WITH RESPECT TO MASS MARKET SWITCHING?

A. Yes. In the *Triennial Review Order*, the FCC explicitly recognized the complex operational issues currently preventing UNE-L from being a viable local service delivery method and concluded that these issues were serious enough to find nationally that competitors are impaired without access to unbundled local switching. (*Order* ¶¶ 419, 456.) Unlike UNE-P migrations, in which the CLEC uses the same facilities as the ILEC in providing local service, UNE-L migrations are complicated by the necessity of physically moving the customer's loop to the CLEC's collocation equipment and from there routing the customer's calls back to the CLEC's switch. In addition, more data must be exchanged between local providers with UNE-L than is required with UNE-P. The FCC recognized that until these operational issues involving UNE-L are addressed and adequately resolved – that is, until migrations and service changes in a UNE-L environment are as seamless and trouble free as they are with long-distance and UNE-P – a transition to UNE-L would do nothing but harm competition and consumers.

The FCC concluded that the record before it evidenced a wide array of operational issues that prevent UNE-L from being a realistic local service delivery method at present. (*See, e.g., Order* ¶¶ 476-478.) As the FCC stated, competitive carriers may face barriers associated with loop provisioning that may impair their

entry into the mass market. (*Order* ¶ 512.) The FCC asked the states to determine whether ILECs are providing nondiscriminatory access to unbundled loops. (*Order* ¶ 512.) In making this determination, the FCC requested the states to consider more granular evidence concerning the ILECs' ability to transfer loops in a *timely and reliable* manner. (*Order* ¶ 512.) Accordingly, before UNE-L can be an operational reality, it must be possible quickly, seamlessly and reliably to transfer loops from ILEC to CLEC as well as CLEC to CLEC and CLEC to ILEC – both as an operational necessity and to give customers the reliable, problem-free service they demand and expect.

Q. THE FCC DISCUSSED THE "HOT CUT" PROCESS AT SOME LENGTH.

A. Yes, and with good reason. The FCC noted that a "hot cut refers to a process requiring incumbent LEC technicians to disconnect manually the customer's loop, which was hardwired to the incumbent LEC switch, and physically re-wire it to the competitive LEC switch, while simultaneously reassigning (*i.e.*, porting) the customer's original telephone number from the incumbent LEC switch to the competitive LEC switch." (*Order* ¶ 421 n.1294.) Hot cut problems listed by the FCC included "the associated non-recurring costs, the potential for disruption of service to the customer, and our conclusion, as demonstrated by our record, that incumbent LECs appear unable to handle the necessary volume of migrations to support competitive switching in the absence of unbundled switching." (*Order* ¶ 421 n.1294.) The FCC explained that because of the manual, labor-intensive nature of the hot cut process, "hot cuts frequently lead to provisioning delays and

service outages, and are often priced at rates that prohibit facilities-based competition for the mass market." (*Order* ¶ 465.) In other words, the FCC concluded that the hot cut process posed a prohibitive barrier to UNE-L.

Q. DID THE FCC DISCUSS THE IMPACT OF OPERATIONAL IMPAIRMENT ON CUSTOMERS IN ITS ORDER?

A. Yes. In addition to discussing the technical aspect of these network operational issues, the FCC also explained how these operational issues negatively affect the customer's experience. The FCC noted that the delay that accompanies a UNE-L migration prevents competitors from providing service in a way that mass-market customers have come to expect. (*Order* ¶ 466.) For example, in Alabama a BellSouth UNE-P migration takes one business day, while migrating the same customer to UNE-L takes at least five business days (and much longer with BellSouth's "batch transition process"), assuming BellSouth has the resources necessary to perform the cutover on the requested date. A UNE-L migration using today's hot cut process will always have the potential to harm a customer more than a UNE-P migration, because, as the FCC noted, "[f]rom the time the technician disconnects the subscribers loop until the competitor reestablishes service, the subscriber is without service." (*Order* ¶ 465 n.1409.) Similarly, the UNE-L process of "porting" the customer's number from the ILEC switch to the CLEC switch "also potentially subjects the customer to some period of time where incoming calls will not be received," because if the number is not ported properly, calls will not be routed to the customer's new number on the CLEC switch and the calling party will receive a message stating that the customer's

number is no longer in service. This problem can be particularly significant when the customer has called 911 and the 911 operator attempts to call the customer back. In addition, customers will need to re-program customer initiated features like speed dialing and call forwarding after the cut is completed, adding another failure point to the process.

The FCC recognized that because "mass market customers generally demand reliable, easy-to-operate service and trouble-free installation," such disruptions and delays negatively affect customers' perceptions of the CLEC's ability to provide service. (*Order* ¶ 467.) Indeed, the FCC found in the *Triennial Review Order* that customers experiencing such difficulties are likely to blame the CLEC, not the ILEC, even if the problem is caused by the ILEC. (*Order* ¶ 467.) Moreover, because customers view the ILEC as a baseline alternative to the CLEC for local service, customers' negative perception of a CLEC's service directly hampers a CLEC's ability to win and retain customers. (*Order* ¶ 466.)

Q. WHAT WAS THE FCC'S ULTIMATE CONCLUSION?

A. The FCC found that CLECs are impaired nationally without access to the ILECs' unbundled local switching. The FCC recognized that numerous operational impediments make UNE-L currently infeasible, or, at most, possible only to a limited extent, and then only with a great risk of negative customer experience. Based on the FCC's reasoning, these operational impediments must be identified and resolved before UNE-L can be considered a viable service delivery method.

Customer Expectations

Q. HOW HAVE CHANGES IN THE TELECOMMUNICATIONS INDUSTRY AFFECTED CUSTOMERS' EXPECTATIONS CONCERNING THEIR ABILITY TO MOVE FROM ONE CARRIER TO ANOTHER?

A. Today's telecommunications consumer is savvier than consumers of the past because of experience with long distance and local competition. Today's consumer moves frequently between carriers and expects seamless migrations. Carriers must be able to provide consumers with seamless and efficient migration between carriers, as well as timely repair and maintenance. If a carrier is unable to provide this high level of service to customers, it will not survive as a competitor.

Q. HOW DOES THE LONG DISTANCE TRANSITION WORK TODAY?

A. Migrations among carriers in the long distance market have set a benchmark for customers' expectations concerning migration among local providers. Through years of experience and expense, ILECs and interexchange carriers ("IXCs") developed the Primary Interexchange Carrier ("PIC") process, using the Customer Account Record Exchange Interface ("CARE") interface. It has taken nearly fifteen years of PIC process improvements since CARE was introduced in 1988 for transitions between long distance providers to be as smooth as they are today. For the majority of all such transactions, this process is completely automated – the order comes into the underlying service provider's computer system containing customer data, and if the order meets basic criteria, it flows through the system to the switch, where the PIC is changed, and then a confirmation

message is sent directly to the new IXC. The entire process takes approximately twelve hours. Thus, because of a standard, automated process that was created through years of refinement and cooperation, transitioning between long distance providers is the quick and relatively problem-free process that customers have come to expect.

Q. IS THERE A SIMILAR EXPERIENCE TODAY IN THE LOCAL SERVICE ARENA?

A. Yes, for most customers, UNE-P transitions are also relatively seamless. CLECs and BellSouth have worked together since the passage of the Act to develop an automated process for the smooth migration to UNE-P of retail, resale, and CLEC-served UNE-P local voice customers. Today, the customer does not know that the process is occurring until it is completed and the new carrier's features and functionalities, such as voice mail, appear on his line. Since BellSouth no longer issues disconnect and new orders for UNE-P migrations, only rarely is there loss of dial tone, the need for coordination between BellSouth and the CLEC, or manual intervention at the central office MDF. Rather, just as in the long distance world, the CLEC sends an automated request to BellSouth for the migration of the new CLEC customer, and the change is made. In this way, the UNE-P process is quite similar to the CARE long distance process, and is indeed no different from the customer's experience in changing features of its BellSouth service without changing providers. As a result of the industry efforts concerning UNE-P, millions of customers have been migrated successfully from BellSouth to UNE-P CLECs, and from one UNE-P CLEC to another UNE-P CLEC, with no

loss of dial tone and no need for central-office-based installation and maintenance support.

Q. CAN YOU PROVIDE A MORE DETAILED DESCRIPTION OF THE UNE-P MIGRATION PROCESS?

A. Yes. The process of migrating a BellSouth customer to CLEC UNE-P service proceeds is outlined in Exhibit SL-1.

Q. HOW LONG DOES THE UNE-P MIGRATION PROCESS GENERALLY TAKE?

A. The entire retail-to-UNE-P migration process is typically completed within one business day, regardless of the features ordered. CLECs can send and receive large numbers of transactions (including migrations, disconnections, and feature changes) per hour, because the process is almost wholly electronic. And these transactions can be completed on the same day, without the need to negotiate with a project manager or schedule work times. Most importantly, just like a long distance PIC change, the UNE-P migration process is relatively seamless to the customer and allows customers to change carriers whenever they wish.

Q. IS IT IMPORTANT THAT CUSTOMERS BE ABLE TO CHANGE PROVIDERS RAPIDLY AND SEAMLESSLY?

A. Yes, as noted above, today's consumer changes carriers more frequently than consumers of the past and expects to be able to do so in an efficient and timely manner. In the telecommunications industry, this movement of customers to and from carriers is commonly referred to as "churn." Churn generally describes the behavior of customers as they move not just from BellSouth to a CLEC but also

from a CLEC to BellSouth and from a CLEC to another CLEC. Today, migrations between CLECs that use UNE-L (for example, from CLEC 1 UNE-P to CLEC 2 UNE-L or CLEC 1 UNE-L to CLEC 2 UNE-L) are not seamless, quick or efficient; indeed, they usually take extended periods of time and often fail. Without a simple and seamless method to transfer customers between providers using different facilities-based service delivery methods, customers may become "stuck" and unable to exercise their choice to leave one carrier and migrate to another.

Q. IS CHURN A BAD THING OR A GOOD THING?

A. It is really both. Churn is a good thing for consumers, because it allows them to try new products and services from varying providers. Such consumer movement encourages carriers to innovate and become more efficient, and, in turn, rewards that innovation and efficiency. In a very real sense, churn is the proof that the competitive process is working. Although good for consumers, churn is problematic for industry players: not only is it expensive when consumers pick a provider for only a short period of time and then leave for another provider, but churn also complicates both the record keeping and billing processes that accompany acquiring and losing a customer for both the acquiring carrier and the underlying network service provider. However, competitors realize that churn – the customer's ability to move amongst providers quickly and efficiently – is a necessary and integral part of a competitive telecommunications landscape. Consumers cannot be "locked in" to a single provider or "stranded" on a single

service delivery platform. They must be able to make choices and migrate among providers at will.

Q. IS THERE A LOT OF CHURN IN THE INDUSTRY TODAY?

A. Yes, as I discussed above, customers are more educated and savvy today and move more frequently among carriers to get better service packages. Churn rates today are fairly high in the telecommunications industry, in both long distance and UNE-P local markets. These high churn rates have been enabled by regulatory requirements and changes in the OSS of the carriers. Specifically, equal access in the long distance arena, and UNE-P and electronic order processing in the local service arena, have facilitated customer migrations and permitted churn to exist and accelerate.

Operational Impairment

Q. ARE THERE UNE-L PROVIDERS SERVING MASS MARKET CUSTOMERS ON A BROAD SCALE TODAY?

A. No. There are virtually no UNE-L providers from which mass markets (and particularly residential) customers can choose, and those providers that do exist provide service in limited areas and support a limited range of customers.

Q. WHY NOT?

A. There are a number of economic and operational reasons. One of the operational reasons is that a migration to and from the UNE-L service delivery method is anything but simple. The systems and processes involved in a UNE-L migration, as opposed to a UNE-P migration, are complex, manually intensive and cumbersome.

Q. WHAT MAKES THE UNE-L MIGRATION PROCESS SO COMPLEX?

A. Unlike UNE-P, UNE-L requires a physical change to the facilities involved in providing service to the customer because the loop serving the customer must be physically disconnected from the BellSouth retail or CLEC UNE-P facilities and then connected to the UNE-L carrier's facilities in the BellSouth central office. Moreover, UNE-L requires an unprecedented exchange of information between the multiple parties involved, including providers not generally involved in the processes reviewed and tested by the Commission. The process flow shown in Exhibit SL-2 illustrates the pre-ordering, ordering, provisioning, maintenance and repair and billing steps involved in a typical BellSouth retail to CLEC UNE-L migration. The migration process is described in narrative terms in Exhibit SL-3.

Q. ARE THERE COMPLEXITIES THAT THE DIAGRAM IN EXHIBIT SL-2 DOES NOT INCLUDE?

A. Yes, while this process flow outlines the steps in a typical BellSouth retail to CLEC UNE-L migration, there are several things that it simply cannot illustrate adequately: (1) at numerous points in this process, manual handling of the UNE-L migration tasks is required, often resulting in errors and delay; (2) UNE-L flow through rates are lower than that of UNE-P, causing still more manual work and, hence, more delay; (3) there is a significant amount of information that must be exchanged among various parties to the migration, and the failure of this information to reach its destination in a timely and accurate manner could significantly affect a customer's service; and (4) the scalability of this process to meet mass-market volumes is doubtful and untested because loops have never

been migrated at mass market volumes at this time. All four of these issues individually or in combination if left unresolved have the potential to derail a competitor's ability to utilize UNE-L to serve mass-market customers.

Q. IS THE UNE-L MIGRATION PROCESS READY FOR MASS-MARKET USE?

A. Absolutely not. If carriers move from a UNE-P to a UNE-L service delivery method before the processes and procedures are in place to allow migrations to take place quickly and efficiently, the churn that is a trademark of competition in the long distance and UNE-P markets will create significant problems both for carriers and customers. Without seamless and efficient migration processes in all directions and among all carriers, customers' attempts to migrate away from their existing carriers could overwhelm the ability of carriers to accommodate those moves. The result could be that customers are in effect held hostage to cumbersome untested processes that cannot support the volume of orders being issued.

In addition, the description and process flow discussed above only outlines the retail to CLEC UNE-L migration. This migration is only one of several migration scenarios that CLECs will encounter in a dynamic competitive UNE-L market. The core scenarios (as seen from MCI's perspective) include the following:

- Retail to MCI UNE-L migration
- MCI UNE-P to MCI UNE-L conversion (the "batch" conversion process)
- CLEC UNE-P to MCI UNE-L migration

- CLEC UNE-L to MCI UNE-L migration
- MCI UNE-L to BellSouth retail migration
- BellSouth retail DSL customer (line sharing or FastAccess) to MCI line splitting via UNE-L
- Line-splitting UNE-P CLEC to MCI UNE-L line splitting (voice and data) migration

This list is by no means exhaustive, but illustrates the kinds of migrations that carriers will need to be able to process on a regular basis. The sheer number of scenarios that must be handled gives some indication of the complexity that moving to UNE-L will entail. Moreover, many of these scenarios involve greater complexity than the retail-to-MCI migration, because some involve additional parties and some involve DSL service. MCI has attached these core migration process flows to this testimony as Exhibit SL-4. Included in these process flows are numbered points in the process where potential challenges may well exist as well as a glossary of relevant acronyms.

Q. PLEASE GIVE SOME EXAMPLES OF THE COORDINATION BETWEEN THE CLEC, BELLSOUTH AND THE CUSTOMER THAT IS REQUIRED TO EFFECT A UNE-L MIGRATION.

A. A cutover from BellSouth to a UNE-L CLEC requires coordination between the CLEC and BellSouth to request the physical movement of the loop, to test the loop once it has been moved, and to create and issue the E911, and LNP transactions. Moreover, if a customer is served by IDLC, a dispatch to the remote terminal or even the customer premise may be required. The highly manual nature

of the process is presumably the reason that BellSouth has included a project manager in its batch hot cut proposal; a skilled manager is needed to coordinate the many manual activities (including the scheduling of the individual hot cuts) involved in the hot cut process. In all migrations, the customer will need to participate, too, by reprogramming features such as speed dial or variable call forwarding and perhaps remaining at home for a technician visit to connect the new loop and potentially to make changes to the inside wire termination at the NID.

Q. IS MOVING BETWEEN CLECS ALSO DIFFICULT?

A. Yes. Once a customer is on a loop, the process of moving between CLECs becomes more complicated, because BellSouth no longer has a record of the customer in its systems.

Q. PLEASE DESCRIBE THE COORDINATION THAT IS REQUIRED BETWEEN CLECS TO EFFECT A UNE-L CLEC-TO-CLEC MIGRATION.

A. A CLEC-to-CLEC migration requires the winning and losing CLEC to cooperate to provide the information necessary to reuse the customer's existing facility (the loop) while notifying all the switches in the worldwide network that the customer's telephone number has moved from one carrier to another. And both the winning and the losing CLEC have to work with BellSouth to coordinate the movement of the customer's loop from one collocation cage to another. The winning CLEC has to work with the losing CLEC to select a date for the migration and they have to ensure that the losing CLEC's "port out" request to

BellSouth will "mate" with the winning CLEC's migration request. If the port out request is rejected, the CLECs must negotiate a new due date and start all over again.

Q. WHAT NEEDS TO BE DONE TO ADDRESS THE ISSUES OF MANUAL PROCESSING AND MULTIPLE PARTY COORDINATION?

A. MCI recommends that these issues be addressed in commission-sponsored industry workshops. Other recommendations are made in MCI's network operational testimony.

Q. DO YOU EXPECT THERE ARE OTHER OPERATIONAL BARRIERS THAT EXIST FOR UNE-L THAT MCI HAS NOT YET DISCOVERED?

A. Yes. As with the development of UNE-P, operational issues will emerge as carriers develop their systems to process UNE-L ordering and provisioning. Today, I am only discussing issues that I am aware of as of the time of this filing. Many new issues can be expected to arise as carriers move toward UNE-L service, and the industry and the Commission will need to address those problems during the process of removing operational barriers to UNE-L.

Q. YOU ALSO MENTIONED OPERATIONAL ISSUES RELATING TO INFORMATION EXCHANGE. PLEASE EXPLAIN WHAT YOU MEAN BY THAT.

A. There are multiple points where there are changes to customer records and information in both internal and external databases that are required for migration to a UNE-L service delivery method. Many of these changes result from the fact that the CLEC switch will be used in the provision of service with UNE-L versus

the BellSouth switch that is used with UNE-P. Because there is very little mass market UNE-L competition today there are a great many unanswered questions surrounding these transfers and information exchanges. These exchanges of information all represent potential points of failure with UNE-L. These coordination, database, and ordering issues represent operational barriers that are of critical importance to both the customer and the service provider.

I will describe information exchange issues involving databases relating to CSRs, LFACS, E911, NPAC, LIDB, CNAM, DL/DA and printed directories. Changes to these databases must take place as efficiently and seamlessly as possible in every UNE-L scenario. In addition, I will discuss the changes to trouble handling that must take place before UNE-L customers can expect the level of repair service to match that of UNE-P. After outlining these issues, I also will discuss approaches MCI recommends for addressing them, which should provide at least a starting point for resolution.

Q. PLEASE EXPLAIN THE CSR ISSUE.

A. Obtaining accurate and complete customer information is essential to a CLEC's ability to submit a valid order. CSRs are used to identify address, feature, directory and other information for migrating customers. CSRs show the most current customer configuration based on the switch port and the current carrier's internal billing systems. During the pre-order phase of a migration, the CLEC representative needs to obtain current customer and service information to create the order. While this information can be retrieved on a real time basis for BellSouth retail customers (and some UNE-P CLEC customers), the systems and

processes required to obtain and share this information have not been developed for all migration scenarios, most notably CLEC-to-CLEC migrations.

Q. IS THIS AN ISSUE FOR INITIAL MIGRATIONS FROM BELLSOUTH?

A. No. This is not an issue in initial migrations from BellSouth because BellSouth now allows UNE-P customers to be migrated by telephone number and house number, both of which are contained in BellSouth's CSRs.

Q. IS THIS PROCESS THE SAME WITH ALL MIGRATIONS?

A. No. Obtaining this type of customer information becomes much more difficult in a CLEC UNE-L-to-CLEC UNE-L migration because BellSouth no longer has the current customer configuration information. Although the participants in a Florida collaborative have agreed to a 48 hour timeframe for exchanging CSR data, there is no way to ensure that this timeframe is met, and numerous problems with the process still exist. For example, the "winning" CLEC must contact the "losing" CLEC by e-mail, fax, through a web site, or most often, by telephone, to obtain the relevant information. Obtaining information by telephone is not only manually intensive, but is made all the more difficult because there is no complete list of who and when to call. The manual nature of the process means it takes a long time (as opposed to instantaneous transmission for UNE-P) and has a greater margin for error because as yet, there are no CLEC CSR standards for database integrity. MCI's small business team has had significant problems in obtaining CSRs from a number of the CLECs active in the BellSouth territory. To make matters worse, each carrier's CSR looks different and must be interpreted differently, which gives rise to miscommunication.

Q. IS MORE INFORMATION REQUIRED FOR UNE-L MIGRATIONS THAN CLECS CURRENTLY PROVIDE TO EACH OTHER?

A. Yes. Once the customer has migrated to a UNE-L CLEC, additional information is required to effect a subsequent customer move. For example, the carrier to whom the customer is migrating needs the customer's "circuit ID," which will be used by BellSouth to track where the customer exists on the main distribution frame of BellSouth's switch. The circuit ID generally is not included in the CSR, but rather is passed to the first UNE-L CLEC when BellSouth returns a firm order confirmation. The circuit ID is critical, since the winning CLEC will need that information to ensure that the same physical loop can be used to serve the customer, and BellSouth needs the circuit ID to provision the customer's existing loop to the winning CLEC, rather than having to find and provision another loop that its systems show to be available. Because all of the information needed for UNE-L migrations is not readily available – either because BellSouth no longer maintains it or the losing CLEC refuses to provide it, or because there are not reliable, comprehensive systems for transferring this information among CLECs – a new pre-order processes, including a new method of obtaining CSRs from all industry players must be developed for UNE-L.

Q. WHAT CSR INFORMATION DOES MCI REQUEST BE INCLUDED?

A. MCI needs the customer's billing telephone number; working telephone number; billing name and address; directory listing information (including listing type); complete service address; current PICs (for both inter and intraLATA, including freeze status); local freeze status, if applicable; all vertical features; options (such

as toll blocking and remote call forwarding); tracking or transaction number; service configuration information (*i.e.*, whether customer is served via resale, UNE-P, UNE-L, etc.); the identification of the network service provider, and the identification of any line sharing or line splitting on the line; the BellSouth feature name and USOC for vertical features and blocking options to ensure that CLECs can understand each other's CSRs; circuit ID information; and identification of line sharing/line splitting providers. Currently, some CLECs are not providing any CSR information, while in other cases the information is provided slowly. Some CLECs that provide CSR information do not include all the customer's features or the customer's circuit ID, or do not provide an accurate circuit ID.

Q. DO THESE CSR ISSUES AFFECT A CUSTOMER'S ABILITY TO MIGRATE BETWEEN UNE-L CLECS?

A. Yes. This CSR issue must be addressed and the infrastructure developed prior to the implementation of UNE-L. Otherwise, customers will be stuck where they land in their first migration or BellSouth will be forced to install more and more facilities to compensate for the inability to identify the current circuit being used.

Q. DOES MCI HAVE A PROPOSAL TO RESOLVE THESE CSR ISSUES?

A. Yes. MCI proposes the establishment of a distributed CSR retrieval system, similar to the CARE Clearinghouse, which would be used by CLECs and BellSouth alike to route requests for CSR information to the customer's current carrier. The ability to obtain a CSR, including circuit ID information, from all CLECs will be necessary before UNE-L migrations can be handled on the same basis as UNE-P migrations.

Q. PLEASE EXPLAIN THE DISTRIBUTED DATABASE CONCEPT IN MORE DETAIL.

A. MCI recommends that a central clearinghouse be established to identify the owner of a particular customer and to forward queries to the current provider to retrieve that customer's service information. The clearinghouse would serve as a hub for CSR requests, directing them to the proper providers following a single data communications protocol. CLECs would maintain CSRs in a standard format and would agree to standard delivery methods and time frames. CLECs could also establish direct communications between each other if the volume of requests warranted it. Companies that did not want to maintain their own CSRs or could not develop the software necessary to electronically transmit that information to the clearinghouse could contract with third party vendors (or even BellSouth) to support this process. State commissions would need to develop standards and procedures to ensure that information was exchanged within the appropriate time frames.

Q. WHAT CAN BELLSOUTH DO TO SUPPORT THE CLEC TO CLEC MIGRATION PROCESS NOW?

A. BellSouth currently allows CLECs who have agreed to view each other's UNE-P CSRs to do so via the LENS GUI. MCI has issued a change request to BellSouth to allow these CSRs to be provided via EDI. BellSouth should implement this change request immediately and, in addition, should remove the requirement that CLECs contract with each other in order to take advantage of this functionality. In addition, until a CSR Clearinghouse is developed BellSouth should modify its

CSR databases to continue to provide access to the underlying information about customers and their service remaining with BellSouth after a customer has migrated to UNE-L, as has been recommended in the Florida collaborative.

Q. WHY IS LFACS IMPORTANT?

A. Before migrating a customer to UNE-L, MCI must determine whether that customer is served by IDLC. MCI does this by submitting a loop make-up inquiry to LFACS. The accuracy of the data retrieved from this database is critical to the CLEC's ability to determine if it can serve the customer, particularly for combined voice and data offerings (DSL). For example, the CLEC needs to know if the customer's loop is copper (and can be unbundled) or is served through an IDLC system, or whether the customer has fiber to the home. BellSouth will select one of eight unbundling methods for customers served by IDLC and will not unbundle fiber to the home, so this pre-order information is critical in determining whether the customer can be migrated to a CLEC's switch. It is also critical in determining whether customers may obtain DSL after their migration.

Q. IS THE DATA CONTAINED IN LFACS ACCURATE?

A. At this point we do not know. Given the current low level of UNE-L and DSL competition, it is difficult to know how inaccurate LFACS data is, despite testing done during the 271 process. More importantly, as churn continues and more customers are migrated to UNE-L, won back by the ILEC, and then migrated to other companies, the quality of this database may degrade.

Q. HOW DOES MCI PROPOSE TO RESOLVE THIS ISSUE?

A. MCI proposes that LFACS be audited for accuracy and that a process be developed to ensure that it is accurately maintained in real time when BellSouth alters or changes its loop plant. This is particularly important as BellSouth takes down its copper plant and replaces it with fiber. In addition, when a CLEC determines that a customer is served by IDLC but spare copper is available, it must be able to "reserve" that facility as part of the UNE-P to UNE-L or retail to UNE-L migration process to ensure that the customer can be moved. SBC is currently reviewing this request as part of the line splitting process. Currently, while LFACS will allow a CLEC to determine whether there is spare copper to support the unbundling of the customer's service, that copper loop may be "taken" by another CLEC or BellSouth itself to serve another customer during the process of migrating that customer or changing that customer's loop to allow the provision of data services.

Q. HOW IS UNE-L TROUBLE HANDLING DIFFERENT THAN TROUBLE HANDLING FOR UNE-P CUSTOMERS?

A. Since UNE-P is provided by combining existing elements of the BellSouth network, customer network issues can be resolved in the same way for a UNE-P customer as they are for a BellSouth retail customer. The CLEC uses the BellSouth Mechanized Loop Test (MLT) to identify the trouble and dispatch the required repair personnel. When a customer moves to UNE-L, his service is provided as three separate components – the BellSouth loop, the CLEC collocation equipment, and the CLEC switch. CLECs will need to isolate the trouble to the company responsible for its repair and then dispatch two separate

repair forces (CLEC resources to repair their switches and collocation equipment and BellSouth forces to repair the loop or NID) before the customer's service can be restored. This will take additional time that may impact customer service.

In a UNE-L environment, MCI representatives gather the appropriate information from the customer and make an initial trouble assessment. To do this, MCI must "sectionalize" the trouble and determine whether a dispatch to the MCI switch, a dispatch to the MCI collocation, a dispatch to the BellSouth MDF, or a dispatch out to the field is required. If the problem is in MCI's portion of the network, MCI either must dispatch a technician to its collocation cage or work with BellSouth to clear the problem. If no trouble is found on MCI's network, typically MCI will request BellSouth to determine if the problem is with BellSouth's network. If no trouble is found after a "dispatch in" to BellSouth, the initial ticket may be closed and MCI may have to open a new ticket if it turns out the problem lies at the MDF or the facility running from the frame to MCI's collocation space. This process thus can lead to increased out of service times and harm customers by putting them in the middle of "finger pointing" exercises.

Q. WHY IS THIS AN ISSUE?

A. Since few mass markets customers today have UNE-L service, this trouble handling process has not yet been adapted for a world where customer service outages must be repaired rapidly so that residential customers can continue to be able to receive dial tone at the same rates as BellSouth customers.

Q. HOW DOES MCI PROPOSE TO HANDLE THIS ISSUE?

A. For trouble handling in a UNE-L environment to work properly, CLECs like MCI need to obtain newer and more advanced test equipment as well as to develop internal processes to address this trouble handling and the anticipated volumes. In addition, all parties need to make sure that the dispatch rules surrounding trouble handling are adequate, function properly and are scaled to mass market volumes. These kinds of issues lend themselves to a workshop process under Commission supervision, along the lines I already have discussed.

Q. WHEN A CUSTOMER MIGRATES TO UNE-L ARE THERE CHANGES INVOLVING A CUSTOMER'S E911 INFORMATION?

A. Yes. When a consumer migrates to a UNE-L CLEC, the 911 database must be updated to reflect the new switching provider. A customer's migration to a UNE-L CLEC requires BellSouth to "unlock" the E911 database, allowing the CLEC record to overlay the existing BellSouth record with updated information, including the CLEC company code and 7x24 emergency number as well as the current customer address information if necessary.

Q. WHAT HAPPENS IF THE CHANGE IS NOT MADE CORRECTLY?

A. If this change is not made correctly, the customer's E911 information in the Automatic Line Identification ("ALI") database will not include the CLEC's company ID or the customer's correct address if the customer has moved or the record required some other correction. It is essential that this change to E911 be done correctly and also that it be seamless and transparent to the migrating consumer.

Q. IS THIS CHANGE REQUIRED FOR UNE-P?

A. No such change is required for UNE-P because BellSouth retains control over the 911-database information for the UNE-P CLEC and continues to provide trap and trace and law enforcement and health and safety functions. Because there is no change to the E911 database, there is little if any chance for errors to be introduced and no additional data requirements for the Public Safety Answering Position ("PSAP") administrators.

Q. COULD YOU EXPLAIN THE NECESSARY E911 CHANGE IN MORE DETAIL?

A. BellSouth in most cases maintains the 911 selective router used for routing a 911 call to the appropriate PSAP. The PSAP dips into the ALI database when a 911 call is received to retrieve the address of the caller. The PSAP is the custodian of the data required to dispatch emergency personnel. The PSAP must have a record for each customer a facilities CLEC has and must be able to contact that carrier. Thus, in a UNE-L environment, there are two orders required for changes to the 911 ALI database. One order must go from BellSouth to the 911 provider to unlock the record in the ALI database. This allows the CLEC to overlay the existing record with the updated 911 ALI record, once the migration has been successfully processed.

The second order must go through the CLEC's vendor (or BellSouth if the CLEC has contracted with it) to overlay the existing 911 record with the new record. It is essential that these orders are coordinated so that the BellSouth "unlock" order arrives before the CLEC "create" order to newly populate the database.

A critical issue here is the timing of the "unlock" order. BellSouth sends the 911 "unlock" order after the UNE-L work order has been closed in the provisioning system (WFA). The CLEC receives the closure information via the normal service order completion transaction (SOC) or via a telephone call if it chooses the costlier coordinated hot cut option. If this notifier is delayed or lost, the CLEC will not know that the loop order has completed, which may delay its 911 transaction. MCI recommends that BellSouth resolve this problem by providing an on-line tracking system similar to that provided by Verizon and proposed by SBC to provide real time notification of order status. Because there will necessarily be a time lag where the 911 system has incorrect information on the network service provider, customers or law enforcement personnel who request a "trap and trace" on the line will be delayed until the proper service provider is identified.

Q. WHAT HAPPENS IF THE ORDERS ARE NOT SEQUENCED CORRECTLY?

A. If the sequence of the orders is disrupted, the 911 database cannot be updated. While the customer will be able to dial 911, the PSAP will only see the old customer record, which may or may not be accurate and will contain the wrong company ID for correction or trap and trace requests or the wrong address if the customer has moved and then obtained UNE-L service from a CLEC. As the number of UNE-L orders increases and particularly during the bulk transition of customers from UNE-P to UNE-L, the problem will become more severe. In addition, the CLEC will be required to check the PSAP information manually to

determine if the update has been accepted and has passed the myriad of required edits.

Q. HOW SHOULD THIS PROBLEM BE FIXED?

A. Aside from requiring BellSouth to comport with the NENA guidelines as discussed above, these critical 911 orders must be coordinated through the various systems and processes of all industry players in order to ensure that migration to UNE-L does not result in E911 problems. MCI suggests that these issues be addressed through a workshop process under the Commission's supervision. As operational barriers to UNE-L are overcome and CLECs transition to that service delivery method, it will be essential to ensure that the required 911 data are accurate as well as seamless and transparent to the consumer. In addition, the Commission, BellSouth, and the CLECs should work with the 911 database providers to improve the error handling capabilities of the system. Currently, 911 errors are returned to CLECs in batch files rather than in real time. This increases the potential for late or inaccurate updates to the database.

Q. ARE THERE ISSUES INVOLVING NPAC IN A UNE-L MIGRATION?

A. Yes. NPAC handles the data base updates necessary to determine the "home switch" for each UNE-L customer -- that is, the switch that provides the customer with dial tone.

Q. ARE NPAC CHANGES NECESSARY WITH UNE-P?

A. No. Since UNE-P uses BellSouth switching, there is no need to send transactions for UNE-P migrations to the NPAC, keeping the number administration task to a manageable level. When CLECs move to UNE-L, however, such transactions

become a necessary and integral part of the process – and one that is currently untested at mass-market volumes.

Q. PLEASE EXPLAIN.

A. When a customer migrates to UNE-L, a transaction must be sent to NPAC to identify the "destination" switch for calls to this number. BellSouth initiates this transaction by creating a "10 digit trigger" in the donor (losing) switch at the time the UNE-L order is created. The trigger will cause incoming calls to "dip" into the NPAC database to determine the switch that now houses the number. The CLEC initiates the second step of this process when it receives notification from BellSouth that the cut has been completed. The CLEC then sends a transaction to NPAC to claim the number. Until the CLEC claims the number in the NPAC database, the customer will be unable to receive any incoming telephone calls. Thus, while a customer will be able to call 911 before the porting activity is complete, he or she will not be able to receive a call back until the transaction is sent and the number is distributed to all the switches in the network. If the NPAC transaction is not completed successfully -- for example, if the NPAC system is down, the request is formatted incorrectly, one of the switches in the network is slow to or unable to update, or BellSouth has not notified the CLEC that the cut is complete -- the customer will not be able to receive calls or voice mail messages, since calls will be directed to the incorrect home switch. Incoming callers will hear a message stating that the line has been disconnected, leading to more confusion and problems. It is essential that the NPAC process be coordinated and

successful. If it is not, consumers could experience service problems that do not exist today with UNE-P.

The LNP process becomes even more complicated when a UNE-L customer migrates to a second CLEC. When the customer changes carriers again, the losing carrier must "unlock" the existing record to allow the winning carrier to "replace" it with its destination code. Both churn and the addition of the ability for customers to migrate their numbers between wireless carriers and from wireline to wireless carriers will raise the number of transactions processed by the NPAC tremendously. It is unclear whether NPAC will be able to handle the volumes of transactions that would occur in a dynamic UNE-L market. In addition, the error checking rules for the NPAC are unclear and must be tested to ensure that the correct numbers are ported. If NPAC cannot handle the volumes or error rates are significant, changes to the NPAC process will undoubtedly prove necessary.

The current experience of customers trying to port their number between wireless carriers provides a good example of the problems that are occurring in the local number portability process. The number portability problems are causing many customers to carry two telephones, one from their new provider and one from their old provider, to ensure that they will continue to receive calls. While this is merely inconvenient to wireless customers (and more expensive than necessary) customers can still receive calls directed to their number. With wireline local number portability, customers would have no work-around to

receive calls until the number was properly ported over to the carrier providing dial tone via a UNE-L loop to the residence.

Q. DOES MCI HAVE ANY SUGGESTED RESOLUTION TO THIS ISSUE?

A. Yes. MCI recommends that the Commission address this issue in a workshop with BellSouth, CLECs, the NPAC administrator (Neustar) and representatives of NANPA, the National Numbering Plan Administrator, which manages and develops requirements for the NPAC database, to determine NPAC's actual capabilities and to develop metrics for the completion of number portability tasks in a UNE-L environment. Volume testing or scalability analysis also will be required to determine whether NPAC actually can handle the volumes of numbers that will be ported in a single day. Since a failure of the NPAC system will have a direct negative impact on customers, it is critical that the movement to UNE-L for mass markets customers not take place until all parties are clear that the system can support the increased volumes.

Q. ARE THERE ISSUES WITH LIDB AND CNAM?

A. Yes. The LIDB and CNAM databases provide information on caller identity and blocking options. UNE-P customers today use the LIDB and CNAM databases provided by the ILEC, so that unless a CLEC customer chooses new blocking options when he or she migrates, no changes are required to his or her LIDB and CNAM information. When a customer migrates a telephone number to a facilities-based carrier, however, the losing company deletes the customer's information from the LIDB and CNAM databases and the acquiring carrier loads that information.

LIDB and CNAM are essential databases. Customer information for migrating customers whose LIDB and CNAM information is not loaded on time or is incorrect will have blank or incorrect calling name displays for caller ID or will have blocking options loaded incorrectly. This could lead to calls being blocked by the called party due to missing information or to the improper rejection of third party billed calls.

Q. WHY IS MCI CONCERNED ABOUT CNAM PROBLEMS?

A. CLECs either must create CNAM data from published sources (which can result in a substandard database) or dip the ILEC systems to receive the data at a per dip rate. The CNAM database stores the information used to provide caller ID information. If this information is not provided, calls from CLEC customers to customers with features like anonymous call rejection cannot be completed; that is, the "anonymous call" will be rejected. Because UNE-L CLECs will have to develop their own CNAM databases from published sources (or pay the higher charge for a non-TELRIC priced database dip), this information will not necessarily mirror that provided when the customer was served by UNE-P, causing customer confusion, increased trouble calls, and potentially leading the customer to return to the ILEC.

Q. CAN YOU GIVE US AN EXAMPLE OF THIS PROBLEM?

A. Certainly. If a customer has a "non-published" but "listed" number, that number will not appear in the phone book but will be available via caller ID. When MCI or another CLEC that relies on its own databases migrates this

customer to UNE-L, this information will change, since the CLEC will have only the published source (the directory) from which to create the CNAM record. After the customer is moved to UNE-L, calls from his telephone to other customers will not display CNAM information and his calls may be rejected as "anonymous."

Q. DOES MCI HAVE A SOLUTION TO THIS PROBLEM?

A. Yes. MCI recommends that the ILEC create a wholesale CNAM information product at a just and reasonable rate. This product would allow CLECs to obtain a download of the ILECs' databases when using UNE-L to ensure that there is consistency of information and that callers are provided with the fully functional features that they require. In addition, all of the parties, both vendors and the ILEC, need to examine the increase in LIDB and CNAM data volumes that they will have to handle to determine whether existing processes are sufficient. In addition, current processes for error checking and reject handling must be followed or new processes developed -- issues that were never addressed with UNE-P because the ILEC systems were used.

Q. WHAT ISSUES FOR UNE-L MUST BE RESOLVED CONCERNING DIRECTORY LISTING AND DIRECTORY ASSISTANCE?

A. With UNE-L, CLECs must send directory listing information to BellSouth to include in both the printed and on-line directories of each company. This step occurs as part of the UNE-L migration order.

Q. DO CHANGES TO DL/DA OCCUR WITH UNE-P?

A. No. No changes are necessary in a migration to UNE-P.

Q. DO THEY OCCUR FOR UNE-L?

A. Yes. The CLEC completes the directory listing form and sends it with its order to BellSouth for processing. While an "as is" (*i.e.*, no change) directory listing can be ordered from BellSouth as part of the "first" retail to UNE-L migration or UNE-P to UNE-L conversion, "as is" directory listings may not be appropriate for subsequent changes, which means that the winning CLEC must provide complete directory listing information for the customer, thereby increasing the likelihood of errors or deletions in the directory as it is "opened" to remove listings and "closed" to put the same listings back in. Again, the sheer volume of directory changes to be processed if UNE-L were to become a viable mass-market service delivery method could have significant impacts on the directory publishing and operator services databases.

Q. DOES MCI HAVE A PROPOSED RESOLUTION OF THIS ISSUE?

A. Yes. MCI recommends that "migrate as is" functionality for directory listings be available for CLEC-to-CLEC migrations as well as for BellSouth-to-CLEC migrations to limit the number of times that this information must be added and deleted.

Q. DO THESE INFORMATION EXCHANGE ISSUES HAVE A SIGNIFICANT EFFECT ON CUSTOMERS IN A UNE-L ENVIRONMENT?

A. Yes. All of these customer record and information changes must take place as efficiently and seamlessly as possible in a UNE-L environment. It is critical that these various orders and transfers of information be coordinated to the greatest

extent possible throughout the various systems and processes of each provider and between providers. A lack of coordination could result in errors in the customer records, the loss of customer data and loss of dial tone.

Batch Hot Cut Process

Q. THE FCC REQUIRES THE STATES TO APPROVE AND IMPLEMENT A "BATCH" HOT CUT PROCESS. WHAT IS THE PURPOSE OF THE "BATCH" HOT CUT PROCESS?

A. In an effort to alleviate some of the operational barriers to UNE-L recognized by the FCC, the *Triennial Review Order* requires that the states approve a batch hot cut process ("Transition Batch Hot Cut Process") to transition UNE-P customers to UNE-L by cutting over unbundled loops in high volumes from BellSouth to CLECs. (*See, e.g., Order* ¶¶ 487-490.) The FCC expected that such a process would enable groups of UNE-P customers to be transitioned to UNE-L simultaneously in batches, thus "result[ing] in efficiencies associated with performing tasks once for multiple lines that would otherwise have been performed on a line-by-line basis." (*Order* ¶ 489.) Yet although the FCC recognized that such "a seamless, low-cost batch cut process for switching mass market customers from one carrier to another is necessary, at a minimum, for carriers to compete effectively in the mass market," it did not view this transitioning process as a panacea. (*See, e.g., Order* ¶¶ 423 (describing the batch process as mitigating, not necessarily eliminating impairment), 487.) Indeed, because this Transition Batch Hot Cut Process only addresses the issue of transitioning to UNE-L the base of customers that competitors like MCI have

acquired on UNE-P, it is merely a discrete piece of the much larger puzzle that must be assembled before UNE-L can be seen as a viable service delivery method. In practical terms, eliminating the operational barriers associated with the every day hot cut process ("Mass Market Hot Cut Process"), which will be used to move customers to and from multiple carriers in a dynamic competitive market, is at least as critical if not more critical than implementing a Transition Batch Hot Cut Process that is only useful for simultaneously moving batches of UNE-P customers to UNE-L.

Q. THE FCC ALSO REFERS TO THE CONCEPT OF "ROLLING ACCESS" IN ITS ORDER. WHAT IS "ROLLING ACCESS"?

A. In the *Triennial Review Order*, the FCC raises the possibility of a state commission granting CLECs "rolling access" to mass market switching, if the state commission determines that such access would cure a finding of CLEC impairment. (*See Order* ¶¶ 521-524.) With rolling access, CLECs would have "access to unbundled local circuit switching for a temporary period [at least 90 days], permitting carriers first to acquire customers using unbundled incumbent LEC local circuit switching and later to migrate these customers to the competitive LECs' own switching facilities." (*Order* ¶¶ 521, 524.) In other words, rolling access would allow CLECs to use UNE-P to acquire customers at the outset, but then would require the CLECs to transition (that is, "roll off") those customers to UNE-L within a specified period after acquisition. Theoretically, this process would enable CLECs to avoid the delays and disruptions of service that would occur if CLECs had to acquire customers via

UNE-L at the outset, because the customers would be first acquired and then transferred to UNE-L via the Transition Batch Hot Cut Process.

Q. WILL ROLLING ACCESS CURE THE OPERATIONAL BARRIERS FACING A MOVE TO UNE-L?

A. No, as this description makes clear, rolling access does not remove the operational impairments presented by the everyday Mass Market Hot Cut Process, because it is simply a delayed batch hot cut process, one that focuses solely on transferring UNE-P customers to UNE-L. As I discuss above, the Mass Market Hot Cut Process will be essential for all customer transfers other than those from UNE-P to UNE-L. For instance, even if CLECs have rolling access, they will not be able to rely on the Transition Batch Hot Cut Process for CLEC-to-CLEC UNE-L migrations. Instead, when a customer wished to be migrated from a UNE-L CLEC, the customer first would have to be changed back to UNE-P so the customer could then be moved to the winning carrier. This situation would be the worst of all operational worlds. Therefore, regardless of whether the Transition Batch Hot Cut Process or rolling access addresses some aspects of CLEC impairment, it is critical that state commissions investigate and resolve the substantial operational barriers associated with the Mass Market Hot Cut process as well.

Q. WHAT THEN SHOULD THE COMMISSION DO WITH RESPECT TO THE HOT CUT PROCESS?

A. Although the Commission must comply with the FCC's requirement that it evaluate, approve and implement a Transition Batch Hot Cut Process, that task

should not distract the Commission from working toward alleviating the distinct operational issues associated with the Mass Market Hot Cut Process. The Transition Batch Hot Cut Process necessarily will require a number of coordinated steps and scheduling with BellSouth, and thus substantial BellSouth involvement and oversight. In contrast, the Mass Market Hot Cut Process will need to be a standardized, simple, and low-cost process that can take place on a day-to-day basis. And it will have to process migrations to and from retail, UNE-P, and resale customers, as well as disconnections, suspensions, and feature additions and changes. Thus, although a batch hot cut process may be helpful, it simply will not address the everyday operational barriers that exist in migrating customers from one UNE-L CLEC to another, from BellSouth to a UNE-L CLEC, and from a UNE-L CLEC to BellSouth. To address these more fundamental difficulties with UNE-L migrations, BellSouth must streamline the standard Mass Market Hot Cut process as well, so that it is as effective, efficient, seamless, low cost and scalable as possible, but without the special scheduling and BellSouth handling necessary for the Transition Batch Hot Cut Process. It is only when day-to-day migrations among all carriers, using all service delivery methods, take place quickly, efficiently and successfully, that a truly competitive market will exist. MCI discusses in detail its hot cut proposals in its Network Impairment Testimony.

Q. HAS BELLSOUTH SHOWN A WILLINGNESS TO IMPROVE ITS EXISTING BATCH ORDERING PROCESS?

A. No. BellSouth recently refused to engage in a collaborative process to improve its batch ordering process, as illustrated by an email the BellSouth change management team sent to CLECs on November 20, 2003. (Exhibit SL-5.) While the Change Control team has now "invited" CLECs to provide proposed changes to the batch ordering process through the change management process, no formal workshop for examining and suggesting improvements to the batch hot cut process has been established and BellSouth continues to state that the batch ordering process is sufficient to prove non-impairment.

Q. IS BELLSOUTH'S RESPONSE SUFFICIENT?

A. No. The BellSouth batch hot cut process includes numerous manual steps (such as the creation of a spreadsheet listing the telephone numbers to be migrated) that must be completed before the initial orders can be issued, as well as the requirement that Batch Hot Cuts be treated like "projects" and managed by a project manager. In addition, BellSouth (unlike the other three incumbent carriers) has made no movement toward providing electronic tools for managing the hot cut process, such as an on-line scheduler and an electronic order tracking/management system, like Verizon's WPTS and SBC and Qwest's proposed order status tool. The Commission should order BellSouth to work with CLECs to develop a true batch hot cut process. BellSouth's failure to work directly with CLECs in a collaborative setting demonstrates that Commission involvement will be required to push BellSouth to make the changes necessary to make UNE-L operationally workable.

Q. HAS BELLSOUTH EVEN PROPOSED A BATCH HOT CUT PROCESS?

A. No, BellSouth has proposed a batch "ordering" process to meet the requirements laid out in the *Triennial Review Order* rather than a true batch hot cut process. The BellSouth process requires a minimum of 24 business days (7 days to "negotiate" with the BellSouth project manager and 17 days to allow BellSouth to prepare for the first cut date) and imposes project management onto the standard ordering process. A CLEC must start the process by sending a spreadsheet listing the lines that it wishes to transition to UNE-L. While BellSouth states that a total of 2475 lines may be ordered at one time (99 Accounts with 25 lines each), these lines will not be cut simultaneously and may even be installed on totally separate due dates. After BellSouth responds to the CLEC's spreadsheet request, the CLEC must complete a "bulk migration LSR," a new type of LSR that appears to be simply a copy of the spreadsheet. BellSouth's systems "explode" the orders into individual service orders that are then treated exactly as they would be under BellSouth's individual LSR provisioning process. BellSouth has done nothing to create the "seamless, low-cost, process" for bulk migration required by the FCC.

Q. HAVE OTHER ILECS WORKED WITH CLECS TO CREATE A BATCH MIGRATION PROCESS?

A. Yes. SBC, Verizon, and Qwest have had ongoing collaboratives to work with CLECs to develop a batch migration process. SBC, Qwest, and Verizon have proposed automated processes that will allow the CLEC to select a due date for its orders and automated tools to track orders. Verizon's tool, WPTS, is already available, while SBC and Qwest have committed to implementing the OSS changes necessary for these automated tools by the end of 2004.

Q. PLEASE BRIEFLY SUMMARIZE YOUR TESTIMONY.

A. One of the major issues in this proceeding is whether operational impairment exists. For the reasons I have outlined, and the ones described in MCI's network operational testimony, it clearly does. But determining that operational impairment exists is the easy part of the Commission's job. The more difficult part is working with the industry to ensure that the barriers are removed. I have presented some approaches to known operational problems that should help the Commission and the industry progress toward making UNE-L operationally feasible for CLECs. As these problems and new ones that arise are addressed and remedied, the industry can begin to make UNE-L a reality.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

EXHIBIT 1

Retail to UNE-P Migration

- The CLEC issues a single UNE-P local service request ("LSR") to the ILEC following the prescribed Ordering and Billing Forum ("OBF") procedures. This LSR is issued using electronic data interface ("EDI") or the ILEC-provided graphical user interface ("GUI"). The CLEC need only provide the customer's name and telephone number. Directory listings can remain the same, and service address information and E911 information are not required by the ILEC.

- The ILEC EDI translator checks the order to ensure that key fields are correct and, via the same computer system, returns a Firm Order Confirmation ("FOC") or an electronic error message (reject or clarification) to the CLEC. The FOC provides the due date for the completion of the programming necessary to complete the order.

- If an error message is issued, the CLEC must resubmit the order, restarting the process.

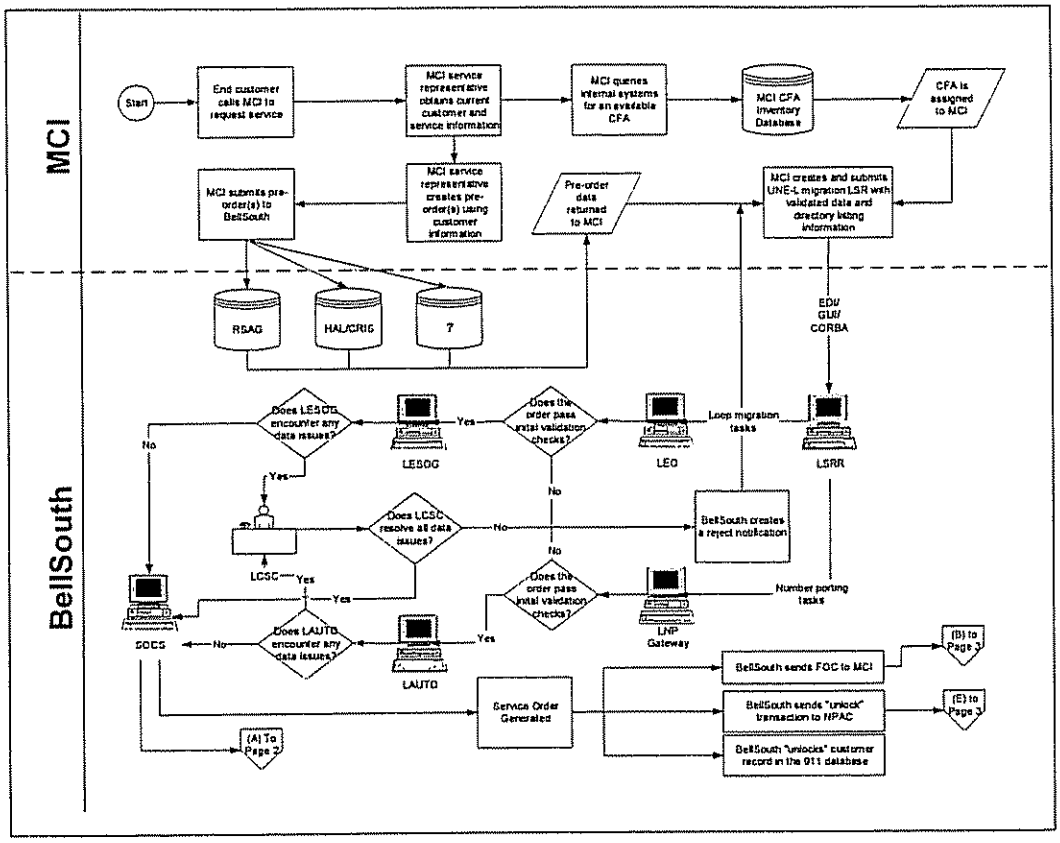
- The order then electronically "flows through" to the ILEC service order processor, where the internal service orders necessary to make the switch programming changes and billing changes necessary for the migration to UNE-P are generated. Flowthrough ensures that errors are minimized by allowing the service orders to be created mechanically, rather than typed by a service representative. Most ILECs are now achieving well more than 90% flowthrough for standard UNE-P POTS service orders.

- The ILEC internal service orders initiate the internal service order provisioning process, including the implementation of switch feature changes. Migration orders do not require the dispatch of technicians to the frame because the programming changes are made at the switch and can be completed totally electronically. The physical facilities (loop and cross connect) are not changed in any way.

- Once the switch translations work is complete, the internal ILEC systems send the CLEC a Service Order Completion ("SOC") notifier. At this point, the customer has "migrated" to the CLEC.

- The ILEC completes its internal migration process by updating its internal customer service records ("CSR") and billing records to stop billing the customer directly and to begin issuing wholesale bills to the CLEC. Some ILECs also send a second notifier, the Billing Completion Notifier, ("BCN") to the CLEC. This final notifier is generally sent between 1 to 5 days after the internal ILEC billing systems are updated and confirms to the CLEC that the customer has been migrated and billing can begin.

EXHIBIT 2


MCI
BellSouth
Start
End customer calls MCI to request service
MCI service representative obtains current customer and service information
MCI queries internal systems for an available CFA
MCI CFA Inventory Database
CFA is assigned to MCI
MCI submits pre-order(s) to BellSouth
MCI service representative creates pre-order(s) using customer information
Pre-order data returned to MCI
MCI creates and submits UNE-L migration LSR with validated data and directory listing information
RSAG
HAL/CRIS
?
EDI GUI CORBA
Does LESOG encounter any data issues?
LESOG
Yes
No
Does the order pass initial validation checks?
LEO
Loop migration tasks
LSRR
Yes
LCSC
Does LCSC resolve all data issues?
No
BellSouth creates a reject notification
No
Yes
Yes
Does the order pass initial validation checks?
Number porting tasks
LNP Gateway
SOCS
No
Does LAUTO encounter any data issues?
LAUTO
Yes
BellSouth sends FOC to MCI
(B) to Page 3
Service Order Generated
BellSouth sends "unlock" transaction to NPAC
(E) to Page 3
BellSouth "unlocks" customer record in the 911 database
(A) To Page 2

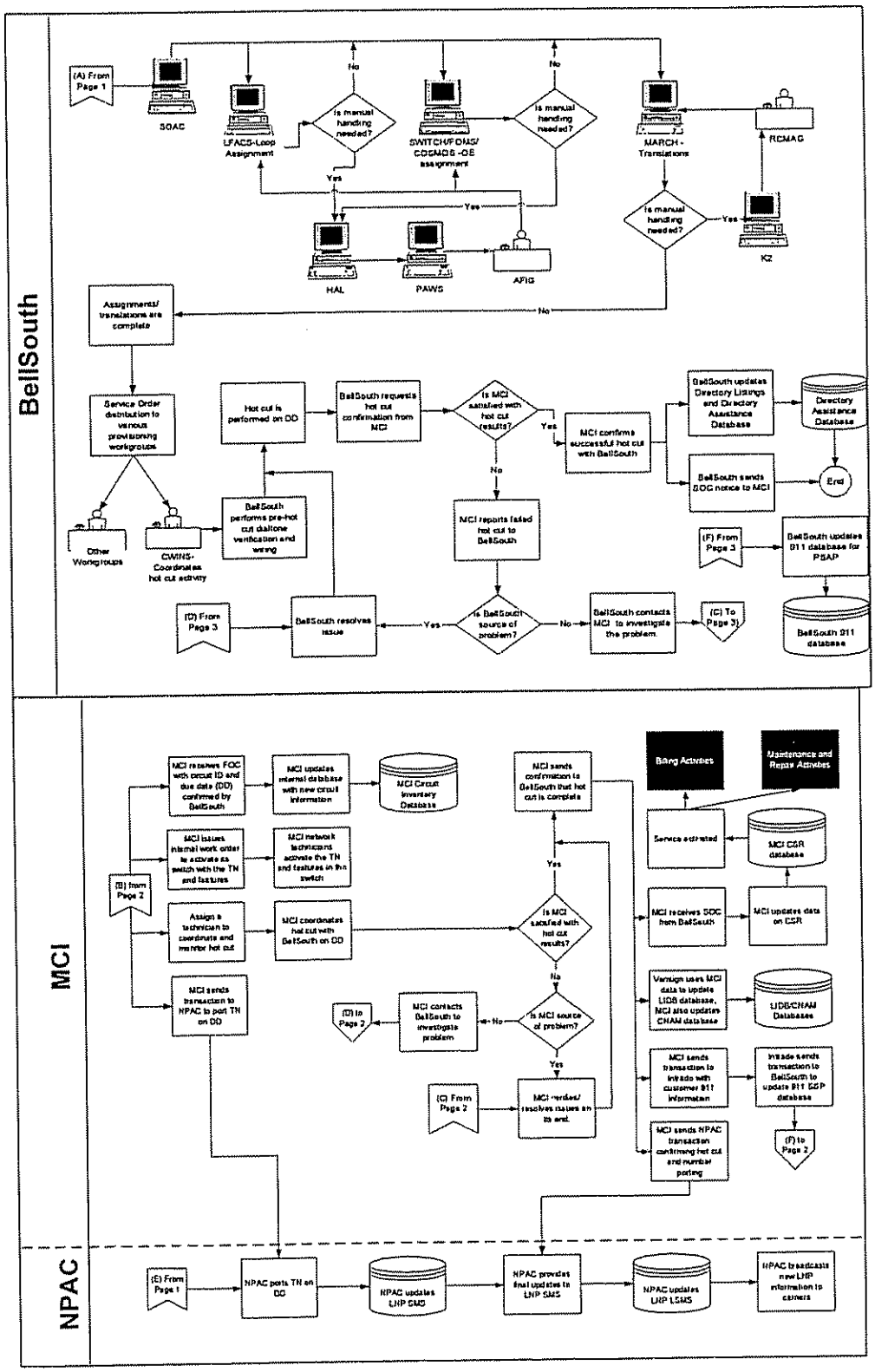

BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
No
Yes
SWITCH/FOMS/ COSMOS -OE assignment
Is manual handling needed?
No
MARCH - Translations
RCMAG
Is manual handling needed?
Yes
K2
HAL
PAWS
AFIG
Assignments/ translations are complete
No
Service Order distribution to various provisioning workgroups
Other Workgroups
CWINS- Coordinates hot cut activity
BellSouth performs pre-hot cut dialtone verification and wiring
Hot cut is performed on DD
BellSouth requests hot cut confirmation from MCI
Is MCI satisfied with hot cut results?
Yes
No
MCI confirms successful hot cut with BellSouth
BellSouth updates Directory Listings and Directory Assistance Database
Directory Assistance Database
BellSouth sends DOC notice to MCI
End
MCI reports failed hot cut to BellSouth
(F) From Page 3
BellSouth updates 911 database for PSAP
BellSouth 911 database
(D) From Page 3
BellSouth resolves issue
Yes
Is BellSouth source of problem?
No
BellSouth contacts MCI to investigate the problem.
(C) To Page 3
MCI
(B) from Page 2
MCI receives FOC with circuit ID and due date (DD) confirmed by BellSouth
MCI updates internal database with new circuit information
MCI Circuit Inventory Database
MCI issues internal work order to activate as switch with the TN and features
MCI network technicians activate the TN and features in the switch
Assign a technician to coordinate and monitor hot cut
MCI coordinates hot cut with BellSouth on DD
MCI sends transaction to NPAC to port TN on DD
MCI sends confirmation to BellSouth that hot cut is complete
Is MCI satisfied with hot cut results?
Yes
No
Is MCI source of problem?
No
Yes
(D) to Page 2
MCI contacts BellSouth to investigate problem
(C) From Page 2
MCI resolves/ resolves issues on its end.
Billing Activities
Maintenance and Repair Activities
Service activated
MCI CSR database
MCI receives SOC from BellSouth
MCI updates data on CSR
Verizon uses MCI data to update LIDB database. MCI also updates CNAM database
LIDB/CNAM Databases
MCI sends transaction to Intrado with customer 911 information
Intrado sends transaction to BellSouth to update 911 SCP database
MCI sends NPAC transaction confirming hot cut and rel number porting
(F) to Page 2
NPAC
(E) From Page 1
NPAC ports TN on DD
NPAC updates LNP SMS
NPAC provides final updates to LNP SMS
NPAC updates LNP LSMS
NPAC broadcasts new LNP information to carriers

EXHIBIT 3

Retail to UNE-L Migration

- The CLEC issues an electronic order to the ILEC requesting that the customer be moved from the ILEC switch to the CLEC switch. Unlike a UNE-P order which requires only the customer's name and telephone number and the features that the customer will be purchasing, the UNE-L order must include the customer's name and telephone number (some companies may require more), and information on the collocation cage to which the loop will be transferred and the channel facility assignment (pair) to which the loop will be terminated.

- The CLEC also will create internal orders to send to the National Number Portability Assignment Center the LIDB provider, and the E911 center serving the customer to establish ownership of the customer's number at the appropriate time. These orders must be timed to coordinate with the orders issued by the ILEC. For example, the ILEC order to unlock the E911 database should be complete prior to the CLEC order to accept responsibility for the record and lock the database. These orders may fall out at any time causing additional customer problems.

- The ILEC EDI translation software will accept or reject the order and return a FOC or clarification/reject to the CLEC. The ILEC service order processor may now be able to create the internal orders necessary to migrate the customer to UNE-L. If it cannot, the orders will need to be entered manually by service center personnel. Fallout rates for UNE-L orders are higher than those for UNE-P. If the order does not flow through the system, the ILEC service order personnel will need to type the orders. Unlike a UNE-P migration, multiple related service orders must be created for a UNE-L transition – generally, the local service center personnel must create a Disconnect (D) order to remove the customer from the ILEC switch; a New (N) order to move the loop from the MDF to the CLEC collocation equipment; and a Change (C) order to change the billing to the CLEC from UNE-P to UNE-L. Directory listing orders may also have to be created, as well as a request to unlock the E911 data base to allow the CLEC to "claim" the customer and a "trigger" order to route calls to the customer via the local number portability data base rather than the ILEC switch.

- The internal ILEC service orders are routed to the technicians responsible for the UNE-L cutover. These technicians must "find" the customer's circuit at the main distribution frame by manually clipping onto the loop and "listening" for dial tone, wire in a jumper cable which will allow the loop to be extended to the CLEC's collocation equipment, and prepare for the cutover. The frame personnel should also check for dial tone at the CLEC end of the collocation, ensuring that the CLEC switch will have dial tone for the customer when he/she migrates.

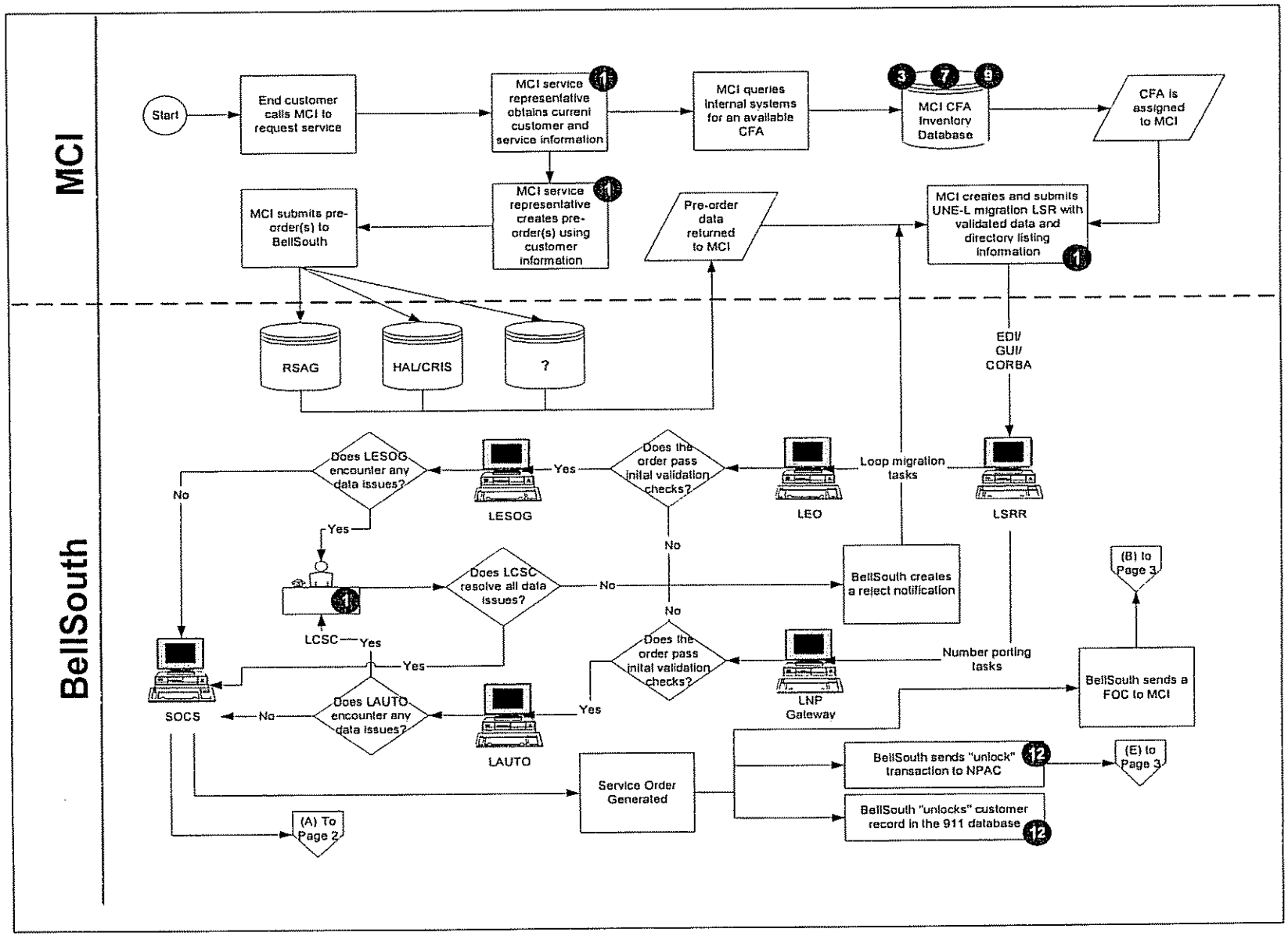
- On the day of the cut, the ILEC runs the jumper to the CLEC collocation cage and notifies the CLEC that the cut has been made. When the CLEC receives the cut notification, it must complete the local number portability transaction by issuing a "claiming" order to the NPAC. The customer will have dial tone during this

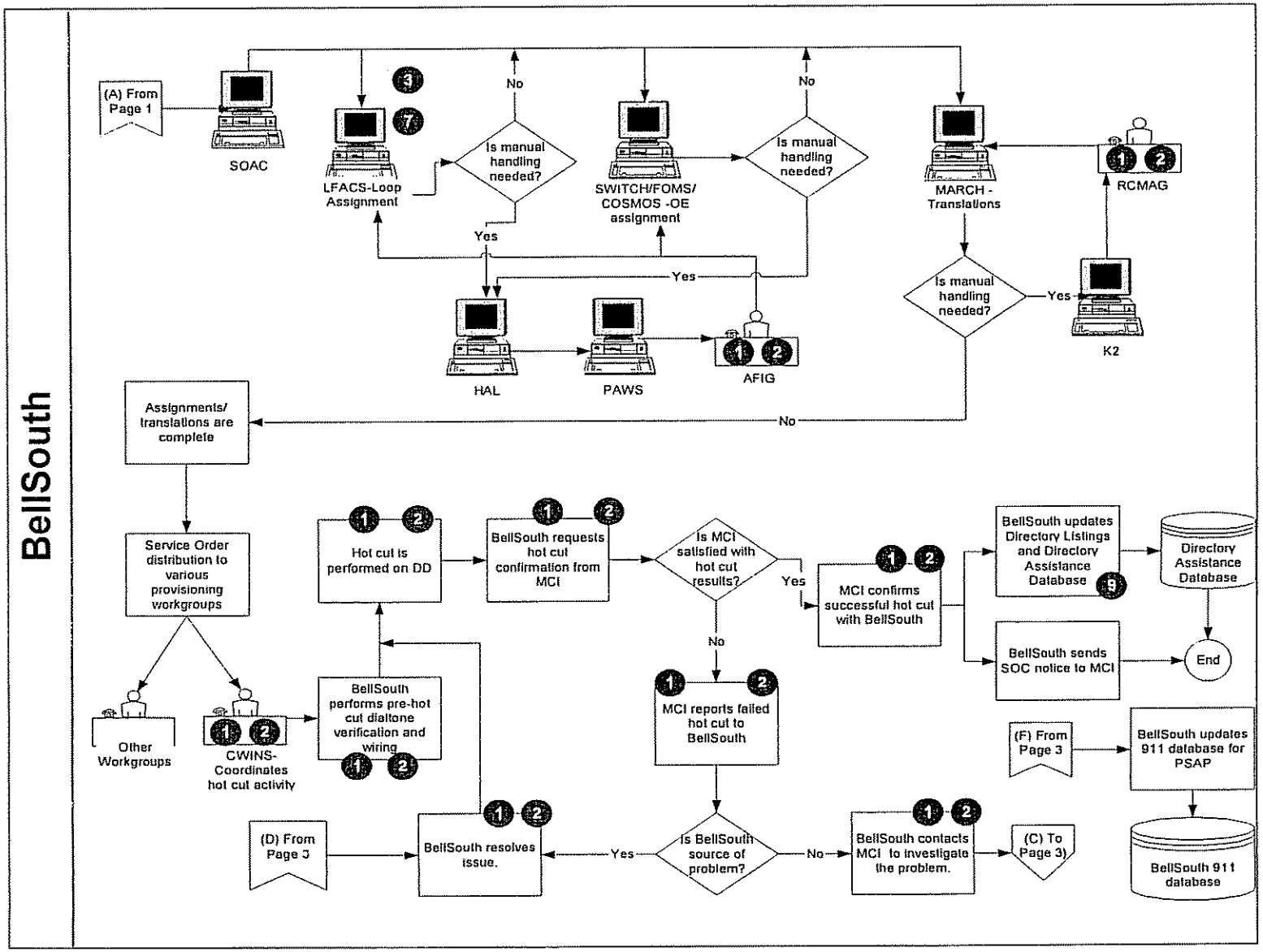
process but will be unable to receive calls until the NPAC transaction is completed.

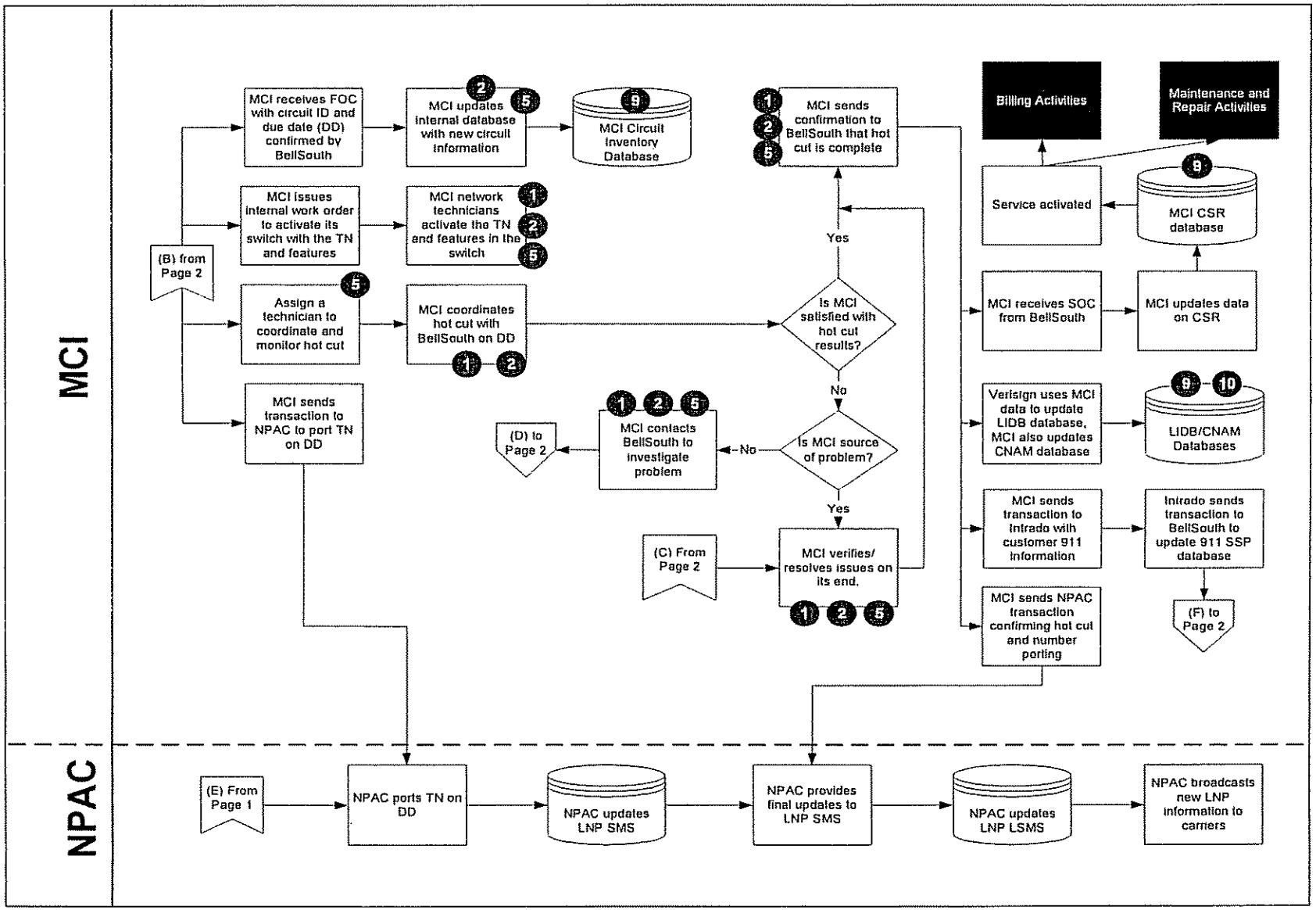
- The ILEC will issue a service order completion notification to the CLEC.
- The ILEC will complete the internal work required to change the billing to the CLEC from UNE-P to UNE-L. The customer's CSR will be removed from the ILEC systems.

EXHIBIT 4

BellSouth Retail to MCI UNE-L Migration




BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
No
Yes
SWITCH/FOMS/ COSMOS -OE assignment
Is manual handling needed?
No
MARCH - Translations
RCMAG
Is manual handling needed?
Yes
K2
HAL
PAWS
AFIG
Yes
Assignments/ translations are complete
No
Service Order distribution to various provisioning workgroups
Other Workgroups
CWINS- Coordinates hot cut activity
BellSouth performs pre-hot cut dialtone verification and wiring
Hot cut is performed on DD
BellSouth requests hot cut confirmation from MCI
Is MCI satisfied with hot cut results?
Yes
No
MCI confirms successful hot cut with BellSouth
BellSouth updates Directory Listings and Directory Assistance Database
Directory Assistance Database
BellSouth sends SOC notice to MCI
End
MCI reports failed hot cut to BellSouth
(F) From Page 3
BellSouth updates 911 database for PSAP
BellSouth 911 database
(D) From Page 3
BellSouth resolves issue.
Yes
Is BellSouth source of problem?
No
BellSouth contacts MCI to investigate the problem.
(C) To Page 3)


MCI
NPAC
MCI receives FOC with circuit ID and due date (DD) confirmed by BellSouth
MCI updates internal database with new circuit information
MCI Circuit Inventory Database
MCI issues internal work order to activate its switch with the TN and features
MCI network technicians activate the TN and features in the switch
(B) from Page 2
Assign a technician to coordinate and monitor hot cut
MCI coordinates hot cut with BellSouth on DD
MCI sends transaction to NPAC to port TN on DD
MCI sends confirmation to BellSouth that hot cut is complete
Is MCI satisfied with hot cut results?
Yes
No
Is MCI source of problem?
No
MCI contacts BellSouth to investigate problem
(D) to Page 2
Yes
(C) From Page 2
MCI verifies/ resolves issues on its end.
Billing Activities
Maintenance and Repair Activities
Service activated
MCI CSR database
MCI receives SOC from BellSouth
MCI updates data on CSR
Verisign uses MCI data to update LIDB database, MCI also updates CNAM database
LIDB/CNAM Databases
MCI sends transaction to Intrado with customer 911 information
Intrado sends transaction to BellSouth to update 911 SSP database
(F) to Page 2
MCI sends NPAC transaction confirming hot cut and number porting
(E) From Page 1
NPAC ports TN on DD
NPAC updates LNP SMS
NPAC provides final updates to LNP SMS
NPAC updates LNP LSMS
NPAC broadcasts new LNP information to carriers

Assumptions:

1) All customers migrating to MCI call into an MCI service center to order service.
2) All customers port their numbers
3) MCI switches will provide all MCI UNE-L customer features.
4) Customers are not moving to new locations.
5) MCI uses a vendor, Intrado, to load 911 records to the PSAP
6) MCI will maintain its own LIDB and CNAM databases MCI uses a vendor, Verisign, to load LIDB data.
7) Scenarios are represented as "ideal" (not necessarily zero-defect): Each party has sufficient resources; each party sufficiently manages its responsibilities; no "one-off" circumstances are involved.
8) When translations are performed, BellSouth sets the AIN trigger.
9) As part of MCI's agreement with BellSouth, line loss reports will only be generated for loss of lines to other carriers If MCI is converting customers from one UNE type to another, line loss reports will not be generated.
10) Provisioning flows are based in part on information obtained from the KPMG Consulting BellSouth-Florida OSS Report.
11) Only processes and systems that directly impact MCI or BellSouth are outlined.
12) For migrations involving DSL, voice and data are pre-wired together in MCI's collocation (DSLAM and Splitter), and inventoried and assigned as one assembly with one CFA.

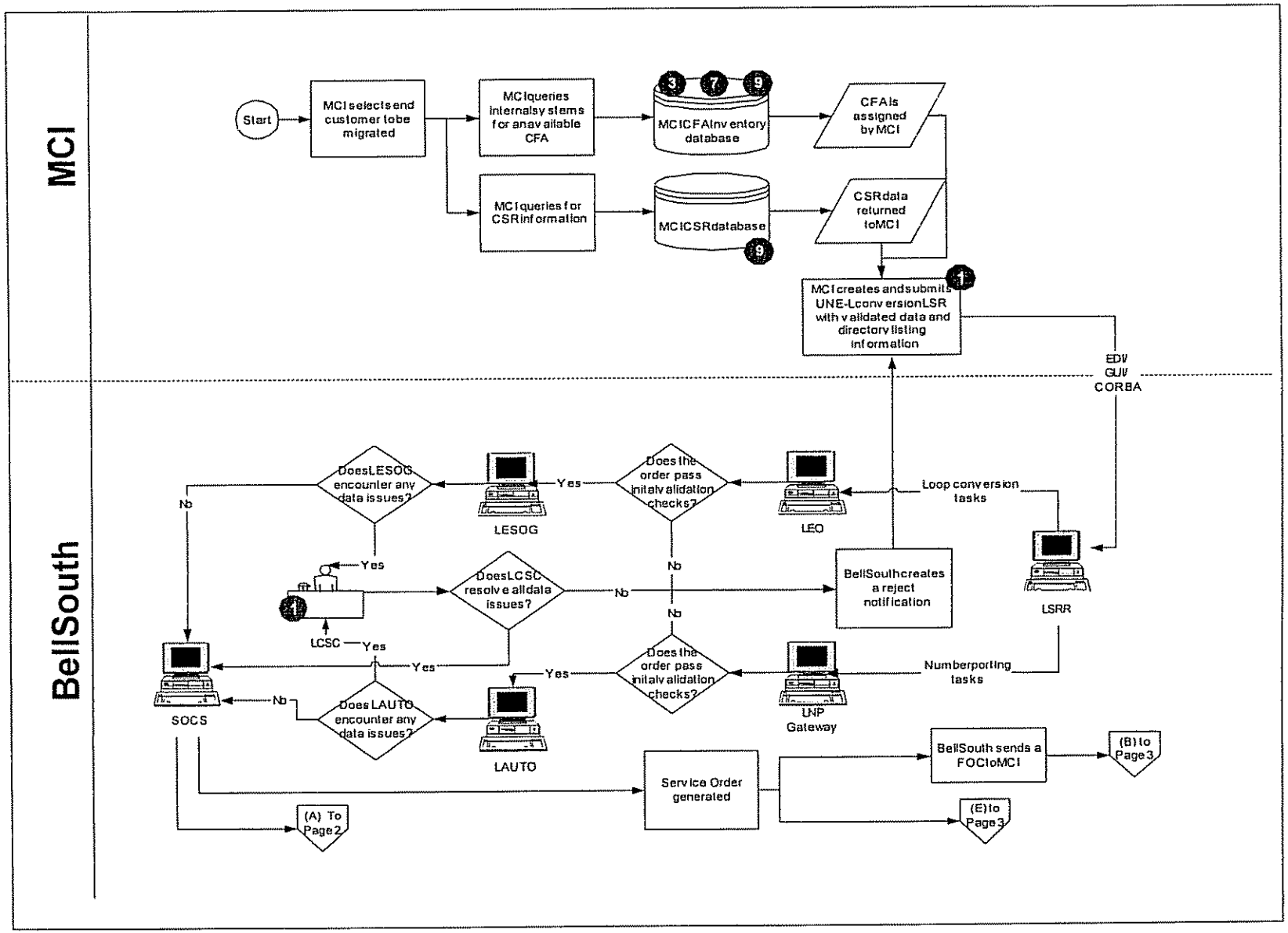
Challenges:

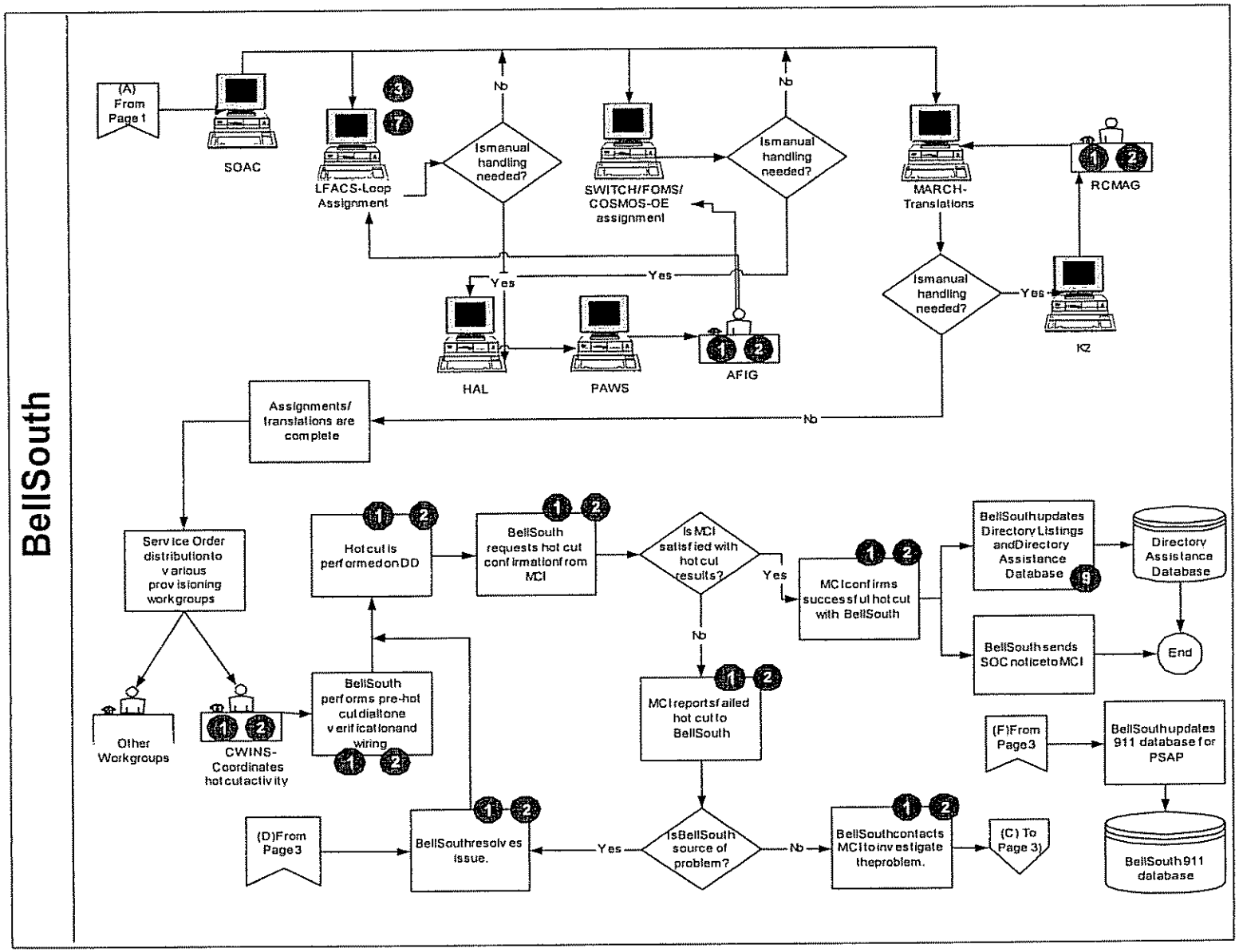
(The following challenges are based on the UNE-L Operational Analysis: Activity Two reports.)

1) Challenges associated with manual handling throughout ordering and provisioning processes.
2) Challenges associated with high steady-state provisioning volumes and the impact on systems and processes.
3) Challenges associated with facility availability
4) Challenges associated with facility re-use.
5) Challenges associated with expanded MCI Provisioning Group responsibilities for UNE-L service.
6) Challenges associated with ordering and provisioning when IDLC service is present.
7) Challenges associated with data management specifically related to facility assignment and inventory
8) Challenges associated with insufficient CLEC-to-CLEC interfaces and processes.
9) Challenges associated with data integrity.
10) Challenges associated with MCI LIDB/CNAM data management responsibilities.
11) Challenges associated with batch migration of customers from UNE-P to UNE-L service.
12) Challenges associated with number unlocking procedures for 911 and LNP.

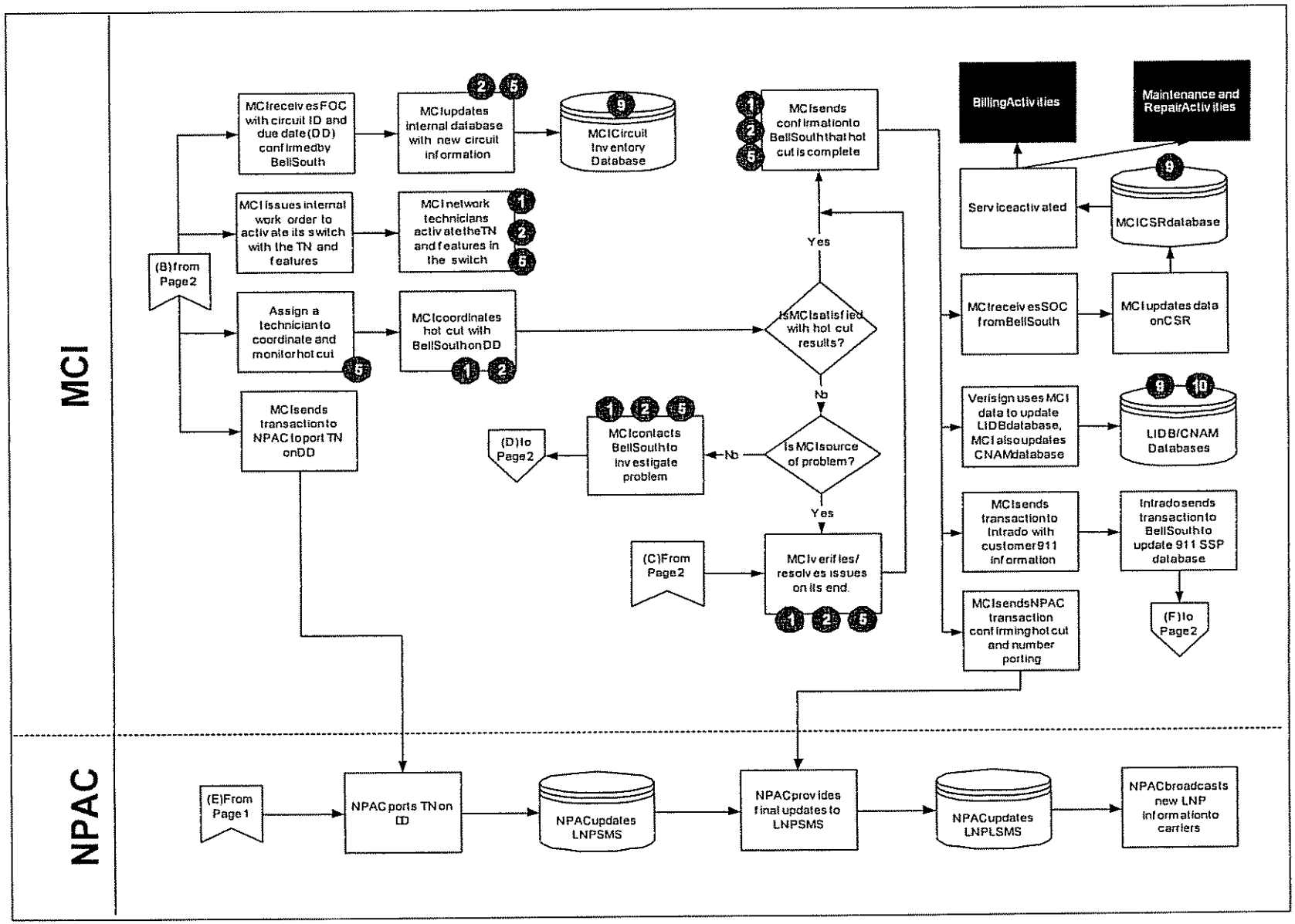
Glossary:

CAFE: Carrier Access Front End
CFA: Connecting Facility Assignment
CNAM: Customer Name Database
CORBA: Common Object Request Broker Architecture ordering interface
CPSS: Circuit Provisioning Status System
CPSS-TA: Circuit Provisioning Status System-Trouble Administration
CSOTS: CLEC Service Order Tracking System
DD: Due date
DSAP: Direct Order Entry (DOE) Support Application
ECTA: Electronic Communications Trouble Administration
FOC: Firm Order Confirmation
GUI: Graphical User Interface
HAL/CRIS: Hands-off Assignment Logic/Customer Record Information System
LAUTO: LNP Automation System
LCSC: Local Carrier Service Center
LFACS: Loop Facility Assignment and Control System
LENS: Local Exchange Navigation System (GUI ordering system)
LEO: Local Exchange Ordering System
LESOG: Local Exchange Service Order Generator
LIDB: Line Information Database
LNP: Line Number Portability
LSMS: BellSouth's LNP database, containing downloads from NPAC's LSMS
LSR: Local Service Request
LSRR: Local Service Request Router
MARCH: Memory Administration Recent Change History
NPAC: Number Portability Administration Center: Manages the LPN process
OE: Office Equipment
OSP: Old Service Provider, also known as the "Losing CLEC"
PAWS: Provisioning Analyst Workstation System provisioning system
PO: Pre-order
PSAP: Public Service Answering Point that receives and dispatches 911 calls
"Reverse" Hot Cut: Hot cut performed when ILEC "wins back" customer from CLEC, and reinstates retail service
RSAG: Regional Street Address Guide
SMS: Service Management System: NPAC's system containing routing and LNP information
SOAC. Service Order Analysis and Control System
SOC: Service Order Confirmation
SOCS: Service Order Confirmation System
SSP: 911 Service Provider
SWITCH/FOMS: Frame Operations Management System
TAFI: Trouble Analysis Facilitation Interface
TAG/RoboTag: Telecommunications Access Gateway/Robust TAG


MCI
BellSouth
Start
MCI selects end customer to be migrated
MCI queries internal systems for an available CFA
MCI CFA Inventory database
CFA Is assigned by MCI
MCI queries for CSR information
MCI CSR database
CSR data returned to MCI
MCI creates and submits UNE-L conversion LSR with validated data and directory listing information
EDI GUI CORBA
Does LESOG encounter any data issues?
LESOG
Does the order pass initial validation checks?
LEO
Loop conversion tasks
LSRR
BellSouth creates a reject notification
Does LCSC resolve all data issues?
LCSC
Does the order pass initial validation checks?
LNP Gateway
Number porting tasks
SOCS
Does LAUTO encounter any data issues?
LAUTO
Service Order generated
BellSouth sends a FOC to MCI
(A) To Page 2
(B) to Page 3
(E) to Page 3
Yes
No


BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
No
SWITCH/FOMS/ COSMOS-OE assignment
Is manual handling needed?
No
MARCH-Translations
RCMAG
Is manual handling needed?
Yes
IKZ
Yes
Yes
HAL
PAWS
AFIG
Assignments/ translations are complete
No
Service Order distribution to various provisioning workgroups
Hot cut is performed on DD
BellSouth requests hot cut confirmation from MCI
Is MCI satisfied with hot cut results?
Yes
MCI confirms successful hot cut with BellSouth
BellSouth updates Directory Listings and Directory Assistance Database
Directory Assistance Database
BellSouth sends SOC notice to MCI
End
No
MCI reports failed hot cut to BellSouth
Other Workgroups
CWINS-Coordinates hot cut activity
BellSouth performs pre-hot cut dial tone verification and wiring
(F) From Page 3
BellSouth updates 911 database for PSAP
(D) From Page 3
BellSouth resolves issue.
Yes
Is BellSouth source of problem?
No
BellSouth contacts MCI to investigate the problem.
(C) To Page 3
BellSouth 911 database

MCI UNE-P to MCI UNE-L Conversion (Individual Customer) (BellSouth)



Assumptions:

1) All customers migrating to MCI call into an MCI service center to order service.
2) All customers port their numbers.
3) MCI switches will provide all MCI UNE-L customer features.
4) Customers are not moving to new locations.
5) MCI uses a vendor, Intrado, to load 911 records to the PSAP.
6) MCI will maintain its own LIDB and CNAM databases. MCI uses a vendor, Verisign, to load LIDB data.
7) Scenarios are represented as "ideal" (not necessarily zero-defect): Each party has sufficient resources; each party sufficiently manages its responsibilities; no "one-off" circumstances are involved.
8) When translations are performed, BellSouth sets the AIN trigger.
9) As part of MCI's agreement with BellSouth, line loss reports will only be generated for loss of lines to other carriers. If MCI is converting customers from one UNE type to another, line loss reports will not be generated.
10) Provisioning flows are based in part on information obtained from the KPMG Consulting BellSouth-Florida OSS Report.
11) Only processes and systems that directly impact MCI or BellSouth are outlined.
12) For migrations involving DSL, voice and data are pre-wired together in MCI's collocation (DSLAM and Splitter), and inventoried and assigned as one assembly with one CFA.

Challenges:

(The following challenges are based on the UNE-L Operational Analysis: Activity Two reports.)

1) Challenges associated with manual handling throughout ordering and provisioning processes.
2) Challenges associated with high steady-state provisioning volumes and the impact on systems and processes.
3) Challenges associated with facility availability.
4) Challenges associated with facility re-use.
5) Challenges associated with expanded MCI Provisioning Group responsibilities for UNE-L service.
6) Challenges associated with ordering and provisioning when IDLC service is present.
7) Challenges associated with data management specifically related to facility assignment and inventory.
8) Challenges associated with insufficient CLEC-to-CLEC interfaces and processes.
9) Challenges associated with data integrity.
10) Challenges associated with MCI LIDB/CNAM data management responsibilities.
11) Challenges associated with batch migration of customers from UNE-P to UNE-L service.
12) Challenges associated with number unlocking procedures for 911 and LNP.

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LSMS: BellSouth's LNP database, containing downloads from NPAC's LSMS
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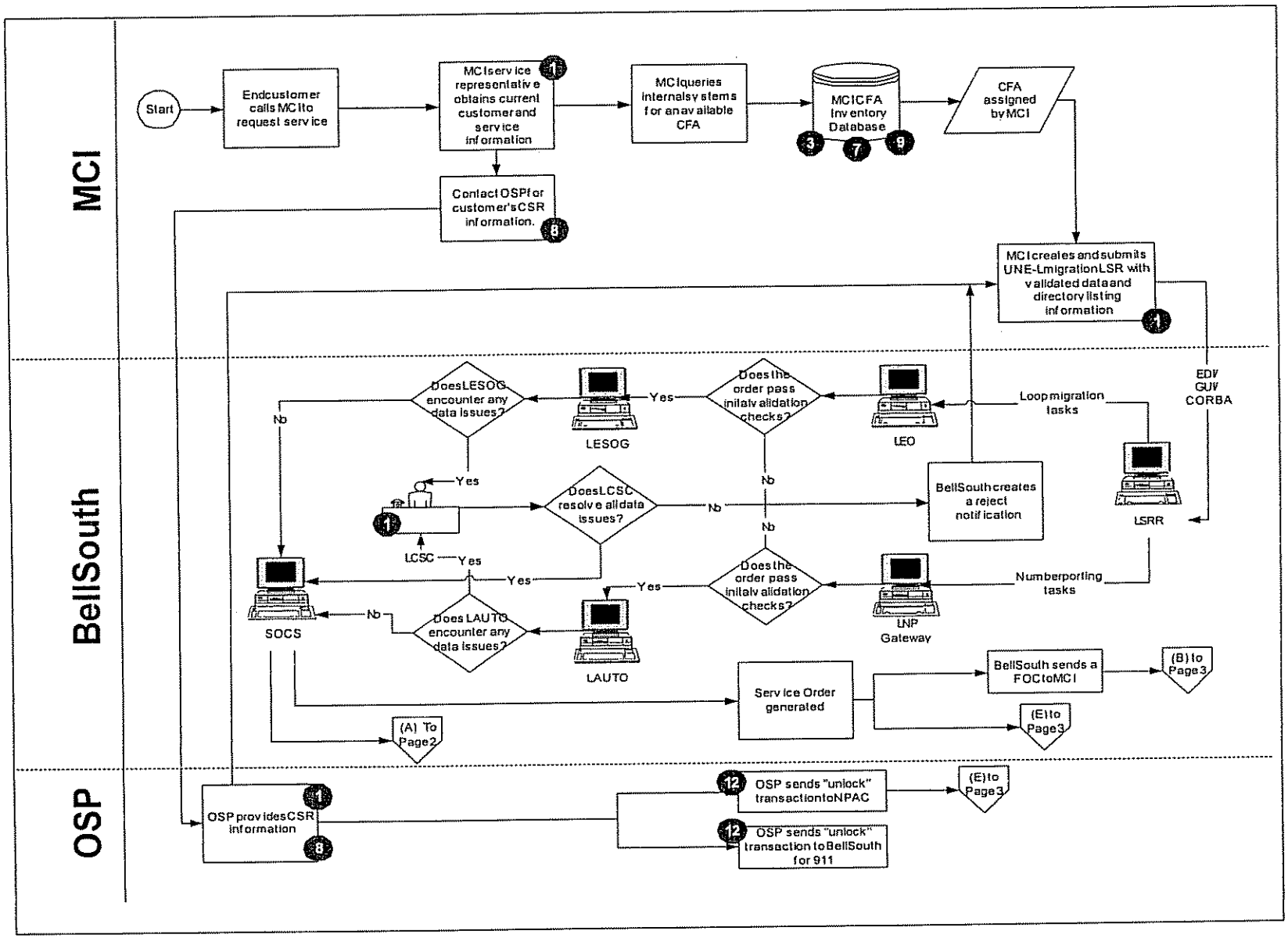
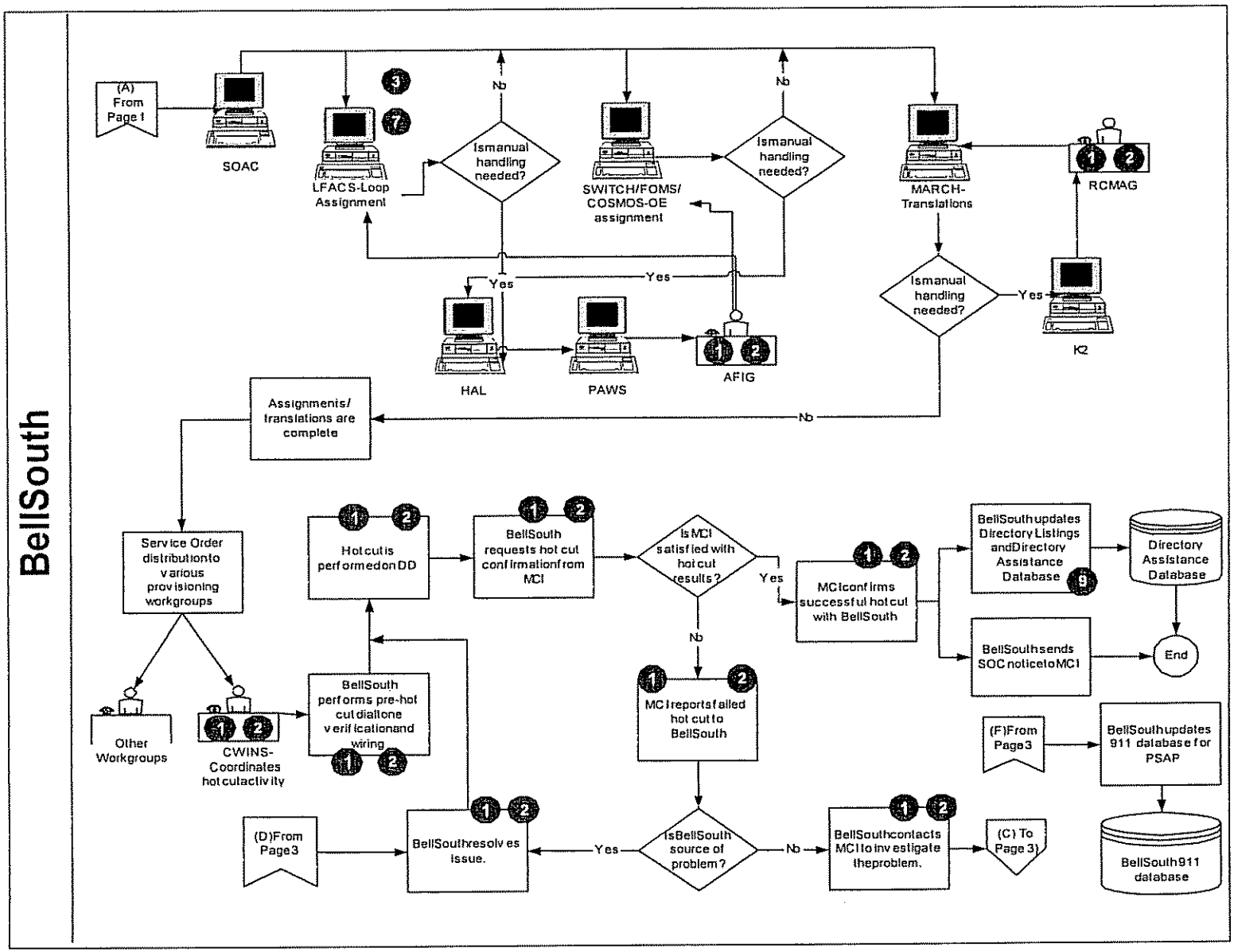
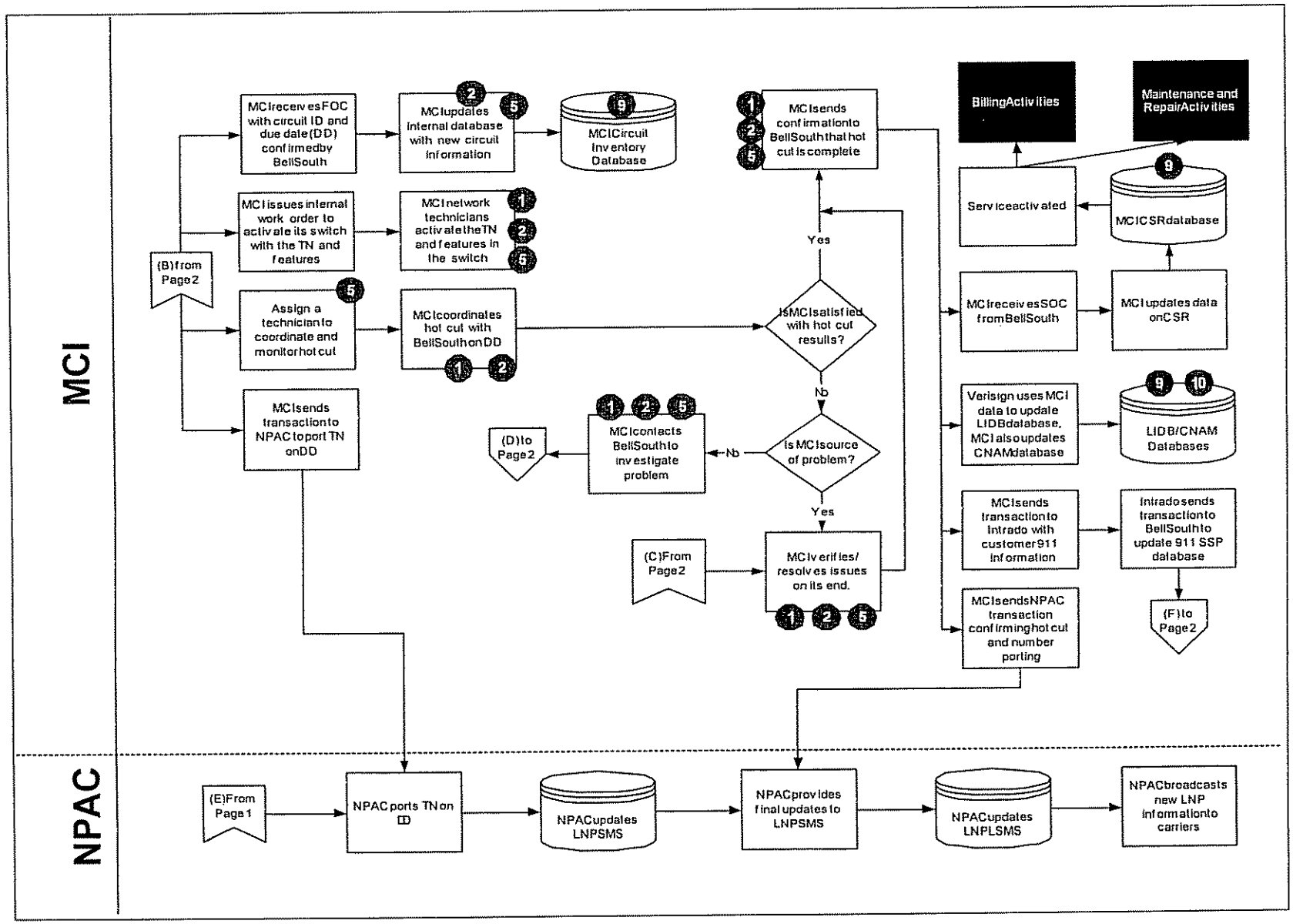
SSP: 911 Service Provider
SWITCH/FOMS: Frame Operations Management System
TAFI: Trouble Analysis Facilitation Interface
TAG/RoboTag: Telecommunications Access Gateway/Robust TAG

CLEC UNE-P to MCI UNE-L Migration (BellSouth)




BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
No
SWITCH/FOMS/ COSMOS-OE assignment
Is manual handling needed?
No
MARCH-Translations
RCMAG
Is manual handling needed?
Yes
K2
Yes
Yes
HAL
PAWS
AFIG
Assignments/ translations are complete
No
Service Order distribution to various provisioning workgroups
Hot cut is performed on DD
BellSouth requests hot cut confirmation from MCI
Is MCI satisfied with hot cut results?
Yes
MCI confirms successful hot cut with BellSouth
BellSouth updates Directory Listings and Directory Assistance Database
Directory Assistance Database
BellSouth sends SOC notice to MCI
End
No
MCI reports failed hot cut to BellSouth
Other Workgroups
CWINS-Coordinates hot cut activity
BellSouth performs pre-hot cut dial tone verification and wiring
(F) From Page 3
BellSouth updates 911 database for PSAP
BellSouth 911 database
(D) From Page 3
BellSouth resolves issue.
Yes
Is BellSouth source of problem?
No
BellSouth contacts MCI to investigate the problem.
(C) To Page 3)

CLEC UNE-P to MCI UNE-L Migration (BellSouth)



Assumptions:

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4) Customers are not moving to new locations.
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1) Challenges associated with manual handling throughout ordering and provisioning processes.
2) Challenges associated with high steady-state provisioning volumes and the impact on systems and processes.
3) Challenges associated with facility availability.
4) Challenges associated with facility re-use.
5) Challenges associated with expanded MCI Provisioning Group responsibilities for UNE-L service.
6) Challenges associated with ordering and provisioning when IDLC service is present.
7) Challenges associated with data management specifically related to facility assignment and inventory.
8) Challenges associated with insufficient CLEC-to-CLEC interfaces and processes.
9) Challenges associated with data integrity.
10) Challenges associated with MCI LIDB/CNAM data management responsibilities
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12) Challenges associated with number unlocking procedures for 911 and LNP.

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LAUTO: LNP Automation System
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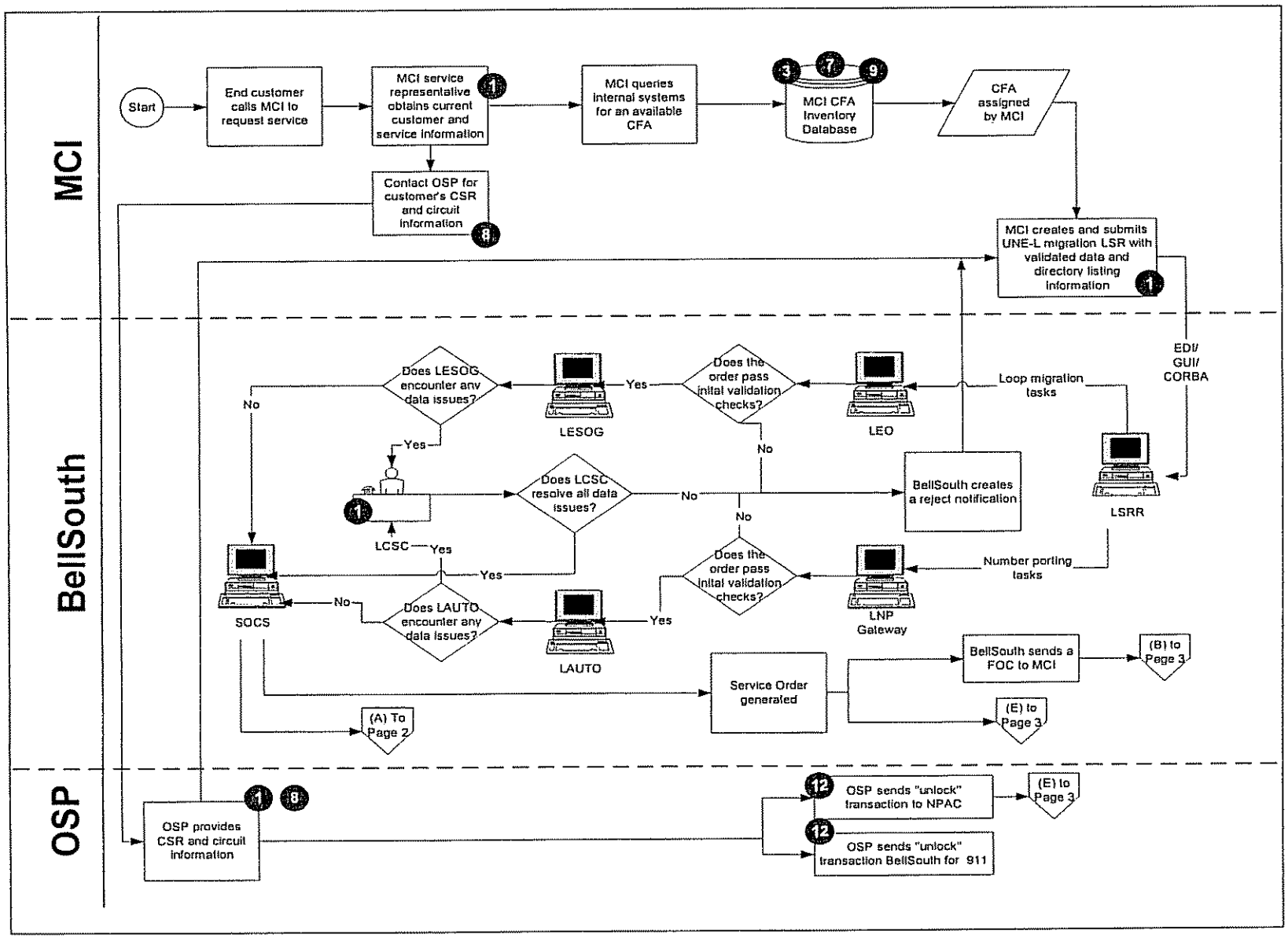
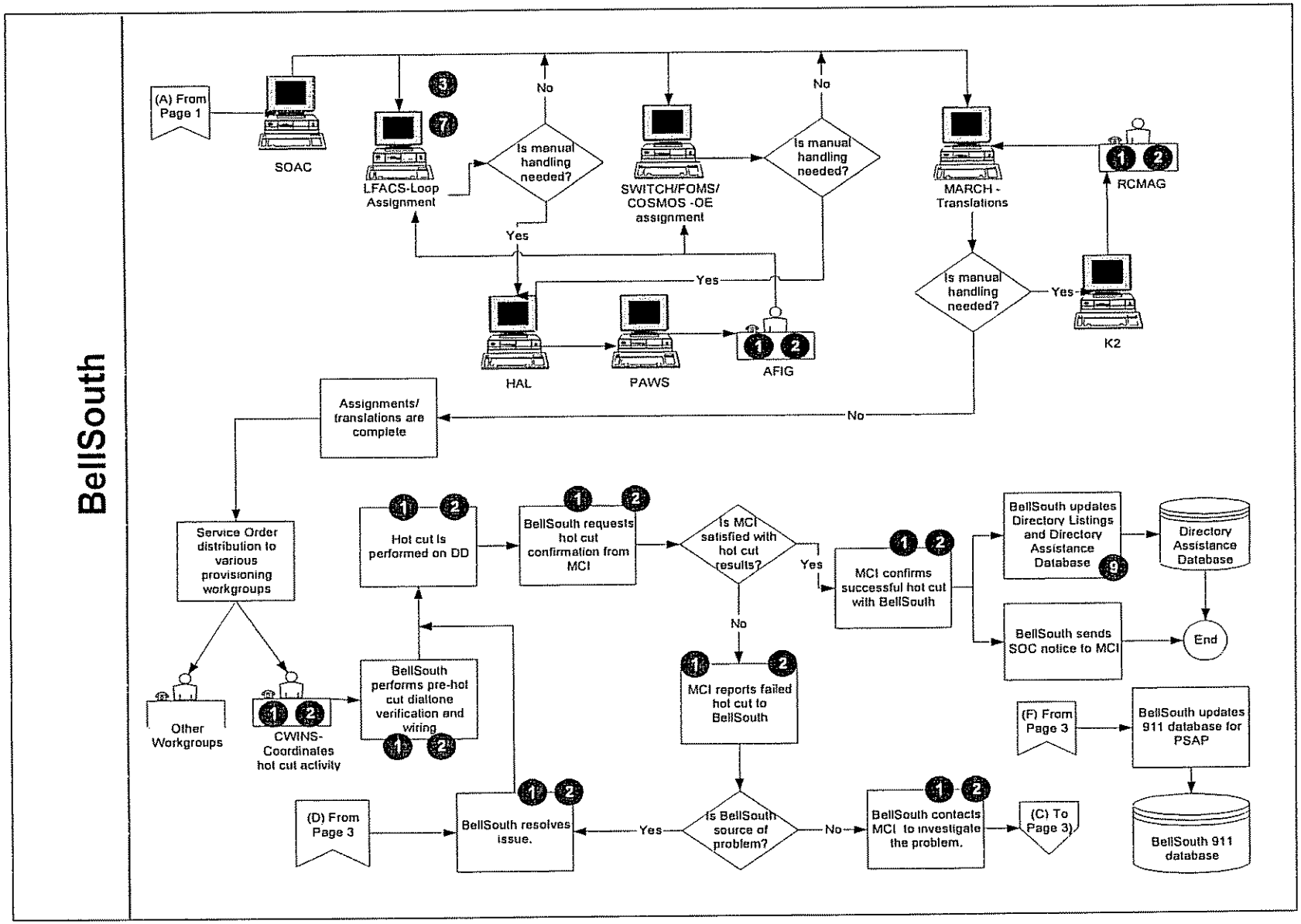
SOC: Service Order Confirmation
SOCS: Service Order Confirmation System
SSP: 911 Service Provider
SWITCH/FOMS: Frame Operations Management System
TAFI: Trouble Analysis Facilitation Interface
TAG/RoboTag: Telecommunications Access Gateway/Robust TAG

CLEC UNE-L to MCI UNE-L Migration (BellSouth)




BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
No
Yes
SWITCH/FOMS/ COSMOS -OE assignment
Is manual handling needed?
No
MARCH - Translations
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K2
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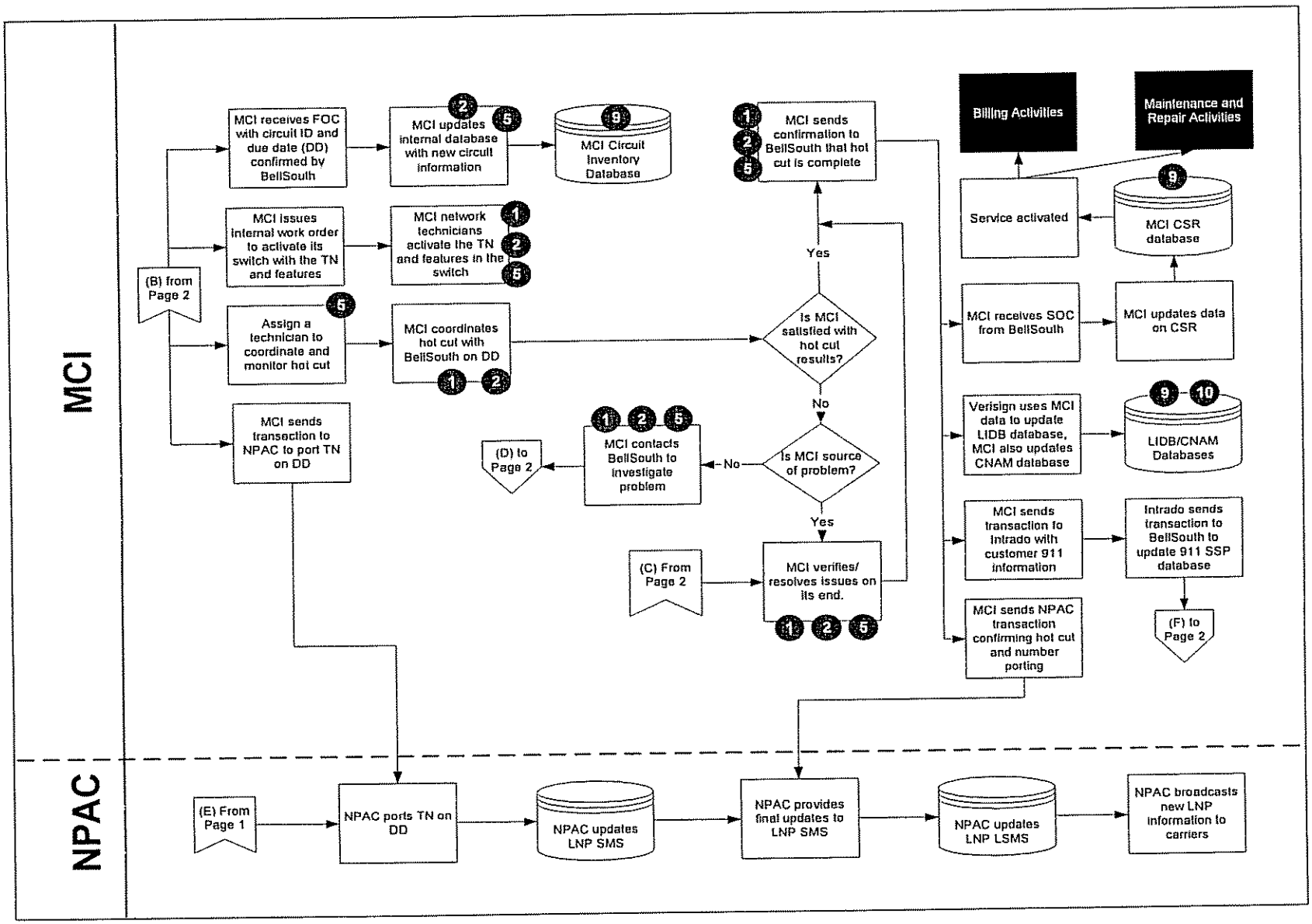
(F) From Page 3
BellSouth updates 911 database for PSAP
BellSouth 911 database
(D) From Page 3
BellSouth resolves issue.
Yes
Is BellSouth source of problem?
No
BellSouth contacts MCI to investigate the problem.
(C) To Page 3


MCI
NPAC
MCI receives FOC with circuit ID and due date (DD) confirmed by BellSouth
MCI updates internal database with new circuit information
MCI Circuit Inventory Database
MCI issues internal work order to activate its switch with the TN and features
MCI network technicians activate the TN and features in the switch
(B) from Page 2
Assign a technician to coordinate and monitor hot cut
MCI coordinates hot cut with BellSouth on DD
MCI sends transaction to NPAC to port TN on DD
MCI sends confirmation to BellSouth that hot cut is complete
Is MCI satisfied with hot cut results?
Yes
No
Is MCI source of problem?
No
MCI contacts BellSouth to investigate problem
(D) to Page 2
Yes
(C) From Page 2
MCI verifies/ resolves issues on its end.
Billing Activities
Maintenance and Repair Activities
Service activated
MCI CSR database
MCI receives SOC from BellSouth
MCI updates data on CSR
Verisign uses MCI data to update LIDB database, MCI also updates CNAM database
LIDB/CNAM Databases
MCI sends transaction to Intrado with customer 911 information
Intrado sends transaction to BellSouth to update 911 SSP database
(F) to Page 2
MCI sends NPAC transaction confirming hot cut and number porting
(E) From Page 1
NPAC ports TN on DD
NPAC updates LNP SMS
NPAC provides final updates to LNP SMS
NPAC updates LNP LSMS
NPAC broadcasts new LNP information to carriers

Assumptions:

1) All customers migrating to MCI call into an MCI service center to order service.
2) All customers port their numbers
3) MCI switches will provide all MCI UNE-L customer features
4) Customers are not moving to new locations.
5) MCI uses a vendor, Intrado, to load 911 records to the PSAP.
6) MCI will maintain its own LIDB and CNAM databases. MCI uses a vendor, Verisign, to load LIDB data
7) Scenarios are represented as "ideal" (not necessarily zero-defect): Each party has sufficient resources; each party sufficiently manages its responsibilities; no "one-off" circumstances are involved.
8) When translations are performed, BellSouth sets the AIN trigger.
9) As part of MCI's agreement with BellSouth, line loss reports will only be generated for loss of lines to other carriers. If MCI is converting customers from one UNE type to another, line loss reports will not be generated.
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Challenges:

(The following challenges are based on the UNE-L Operational Analysis: Activity Two reports.)

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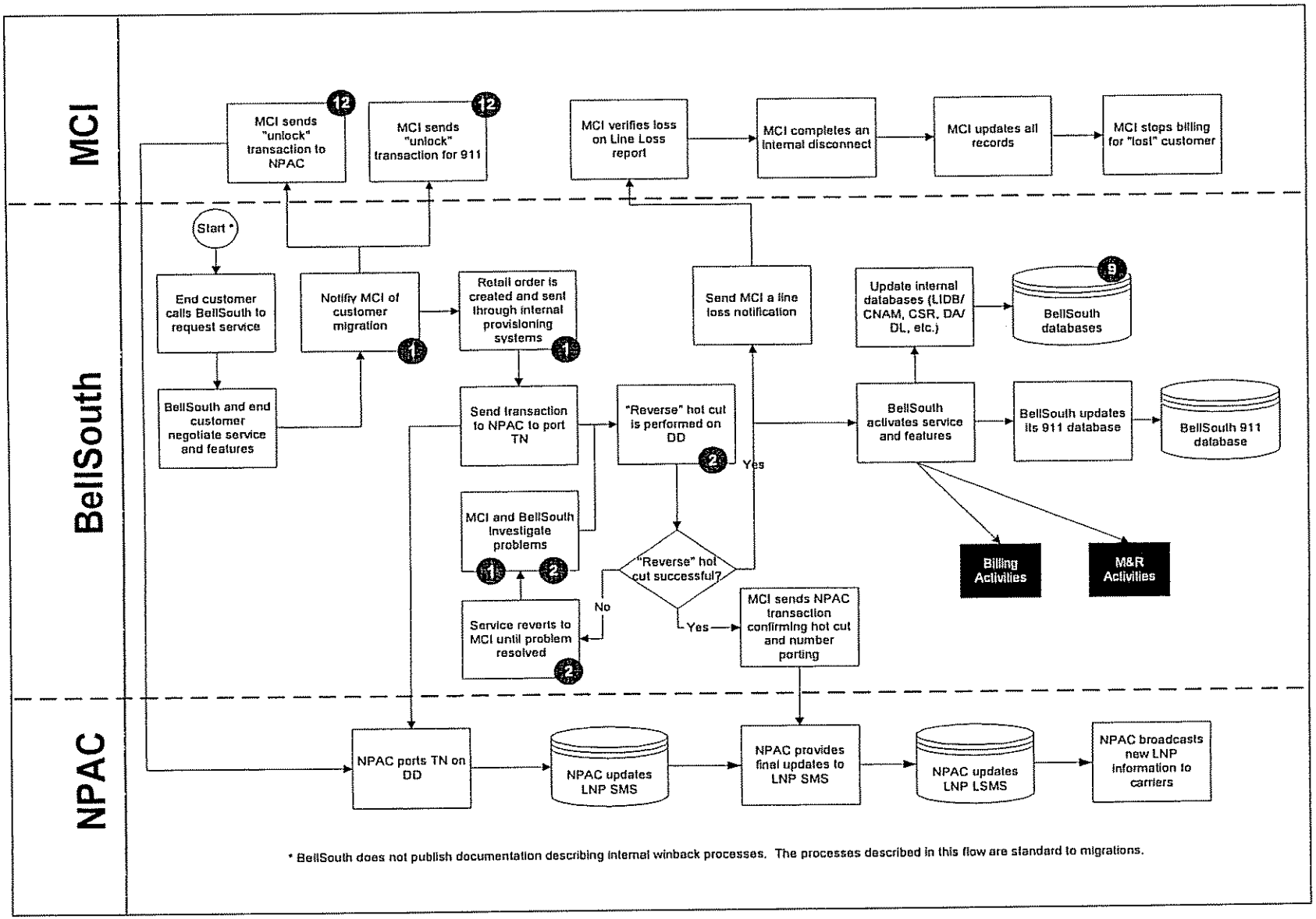
2) Challenges associated with high steady-state provisioning volumes and the impact on systems and processes.
3) Challenges associated with facility availability.
4) Challenges associated with facility re-use.
5) Challenges associated with expanded MCI Provisioning Group responsibilities for UNE-L service.
6) Challenges associated with ordering and provisioning when IDLC service is present.
7) Challenges associated with data management specifically related to facility assignment and inventory.
8) Challenges associated with insufficient CLEC-to-CLEC interfaces and processes.
9) Challenges associated with data integrity.
10) Challenges associated with MCI LIDB/CNAM data management responsibilities.
11) Challenges associated with batch migration of customers from UNE-P to UNE-L service.
12) Challenges associated with number unlocking procedures for 911 and LNP.

Glossary:

CAFE: Carrier Access Front End
CFA: Connecting Facility Assignment
CNAM: Customer Name Database
CORBA: Common Object Request Broker Architecture ordering interface
CPSS: Circuit Provisioning Status System
CPSS-TA: Circuit Provisioning Status System-Trouble Administration
CSOTS: CLEC Service Order Tracking System
DD: Due date
DSAP: Direct Order Entry (DOE) Support Application
ECTA: Electronic Communications Trouble Administration
FOC: Firm Order Confirmation
GUI: Graphical User Interface
HAL/CRIS: Hands-off Assignment Logic/Customer Record Information System
LAUTO: LNP Automation System
LCSC: Local Carrier Service Center
LFACS: Loop Facility Assignment and Control System
LENS: Local Exchange Navigation System (GUI ordering system)
LEO: Local Exchange Ordering System
LESOG: Local Exchange Service Order Generator
LIDB: Line Information Database
LNP: Line Number Portability
LSMS: BellSouth's LNP database, containing downloads from NPAC's LSMS
LSR: Local Service Request
LSRR: Local Service Request Router
MARCH: Memory Administration Recent Change History
NPAC: Number Portability Administration Center: Manages the LPN process
OE: Office Equipment
OSP: Old Service Provider, also known as the "Losing CLEC"
PAWS: Provisioning Analyst Workstation System provisioning system
PO: Pre-order
PSAP: Public Service Answering Point that receives and dispatches 911 calls
"Reverse" Hot Cut: Hot cut performed when ILEC "wins back" customer from CLEC, and reinstates retail service.
RSAG: Regional Street Address Guide
SMS: Service Management System: NPAC's system containing routing and LNP information
SOAC: Service Order Analysis and Control System
SOC: Service Order Confirmation
SOCS: Service Order Confirmation System
SSP: 911 Service Provider
SWITCH/FOMS: Frame Operations Management System
TAFI: Trouble Analysis Facilitation Interface
TAG/RoboTag: Telecommunications Access Gateway/Robust TAG

Winback - MCI UNE-L to BellSouth Retail Migration



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6) Challenges associated with ordering and provisioning when IDLC service is present.
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8) Challenges associated with insufficient CLEC-to-CLEC interfaces and processes.
9) Challenges associated with data integrity.
10) Challenges associated with MCI LIDB/CNAM data management responsibilities.
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SOC: Service Order Confirmation
SOCS: Service Order Confirmation System
SSP: 911 Service Provider
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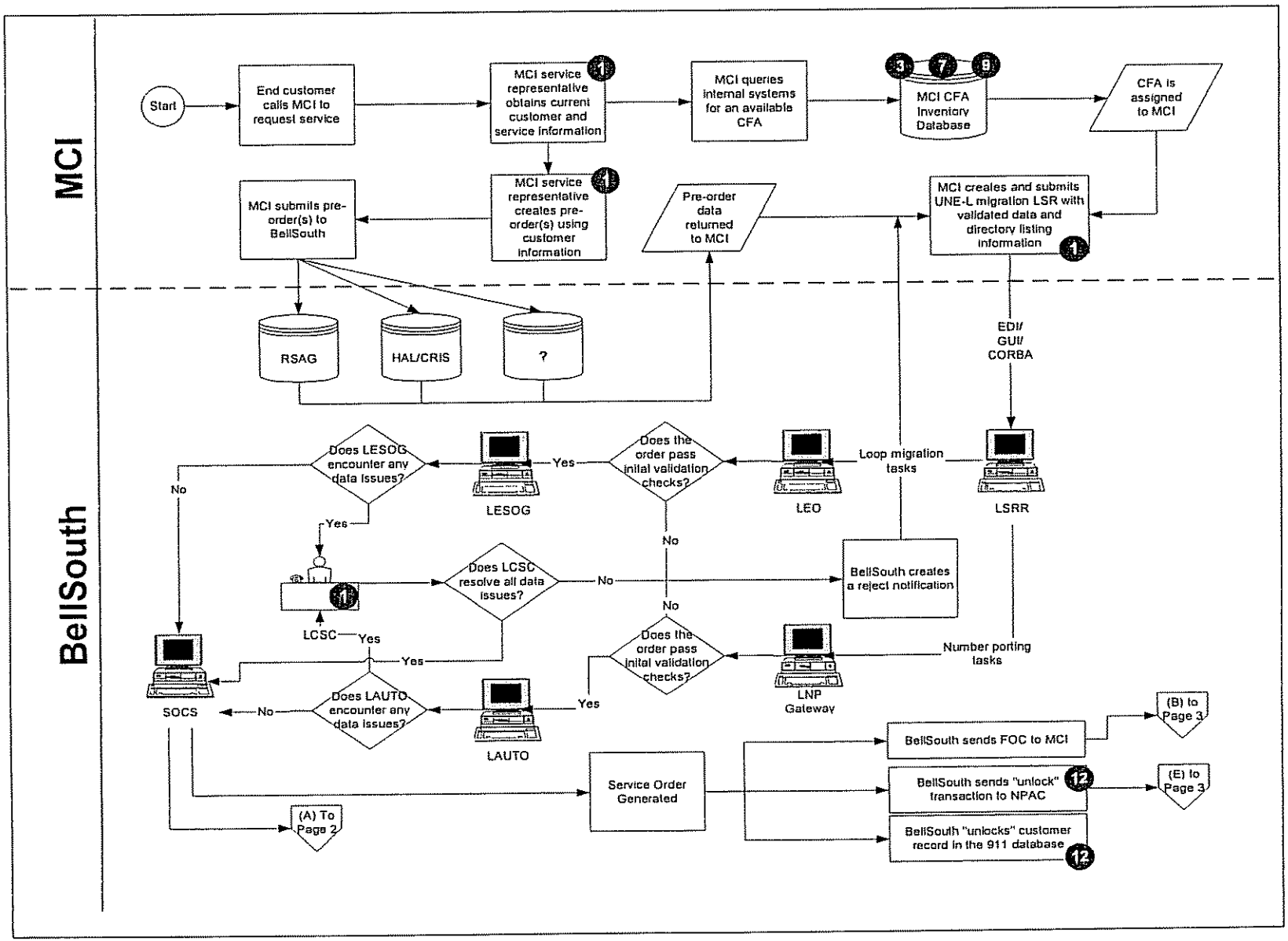
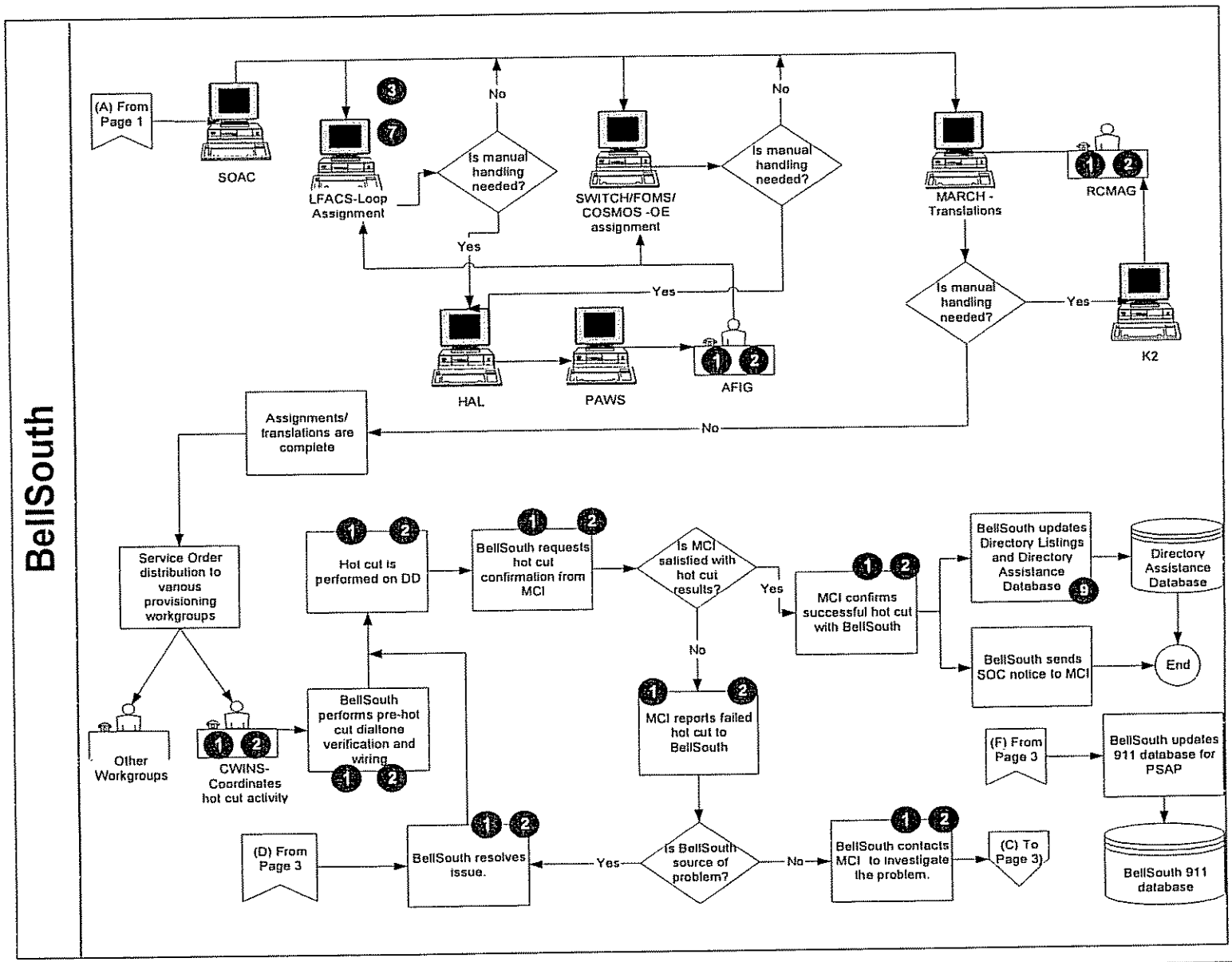
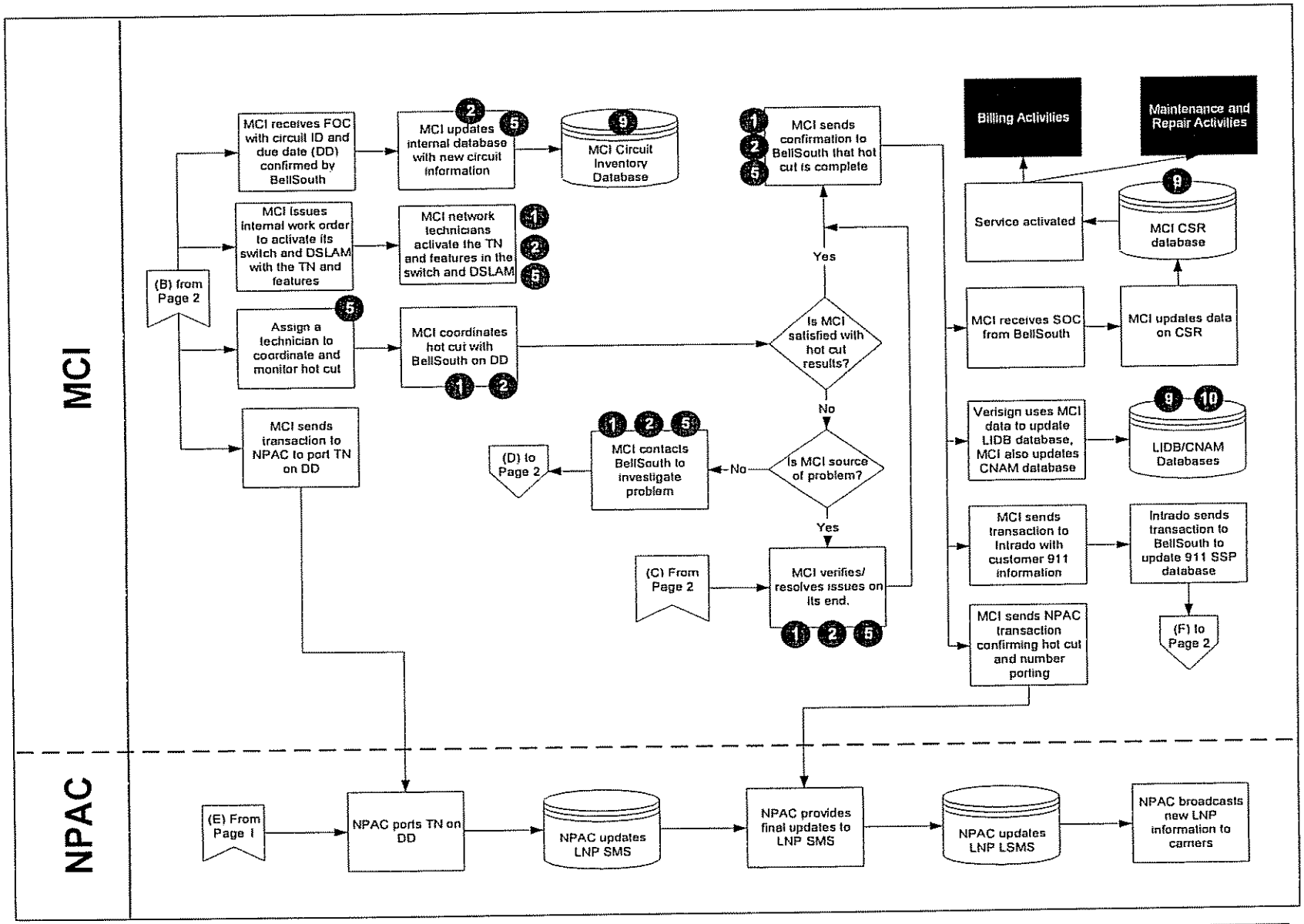

MCI
BellSouth
Start
End customer calls MCI to request service
MCI service representative obtains current customer and service information
MCI queries internal systems for an available CFA
MCI CFA Inventory Database
CFA is assigned to MCI
MCI service representative creates pre-order(s) using customer information
MCI submits pre-order(s) to BellSouth
Pre-order data returned to MCI
MCI creates and submits UNE-L migration LSR with validated data and directory listing information
RSAG
HAL/CRIS
?
EDI/ GUI/ CORBA
Does LESOG encounter any data issues?
LESOG
Does the order pass initial validation checks?
LEO
Loop migration tasks
LSRR
No
Yes
Does LCSC resolve all data issues?
LCSC
BellSouth creates a reject notification
Does the order pass initial validation checks?
Number porting tasks
LNP Gateway
SOCS
Does LAUTO encounter any data issues?
LAUTO
Service Order Generated
BellSouth sends FOC to MCI
BellSouth sends "unlock" transaction to NPAC
BellSouth "unlocks" customer record in the 911 database
(A) To Page 2
(B) to Page 3
(E) to Page 3


BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
No
Yes
SWITCH/FOMS/ COSMOS -OE assignment
Is manual handling needed?
No
MARCH - Translations
RCMAG
Is manual handling needed?
Yes
K2
Yes
HAL
PAWS
AFIG
Assignments/ translations are complete
No
Service Order distribution to various provisioning workgroups
Hot cut is performed on DD
BellSouth requests hot cut confirmation from MCI
Is MCI satisfied with hot cut results?
Yes
MCI confirms successful hot cut with BellSouth
BellSouth updates Directory Listings and Directory Assistance Database
Directory Assistance Database
BellSouth sends SOC notice to MCI
End
No
MCI reports failed hot cut to BellSouth
Other Workgroups
CWINS- Coordinates hot cut activity
BellSouth performs pre-hot cut dialtone verification and wiring
(F) From Page 3
BellSouth updates 911 database for PSAP
BellSouth 911 database
(D) From Page 3
BellSouth resolves issue.
Yes
Is BellSouth source of problem?
No
BellSouth contacts MCI to investigate the problem.
(C) To Page 3)

BellSouth Retail DSL-Capable Loop to MCI DSL-Capable Loop Migration



Assumptions:

1) All customers migrating to MCI call into an MCI service center to order service.
2) All customers port their numbers.
3) MCI switches will provide all MCI UNE-L customer features.
4) Customers are not moving to new locations
5) MCI uses a vendor, Intrado, to load 911 records to the PSAP.
6) MCI will maintain its own LIDB and CNAM databases. MCI uses a vendor, Verisign, to load LIDB data.
7) Scenarios are represented as "ideal" (not necessarily zero-defect): Each party has sufficient resources; each party sufficiently manages its responsibilities; no "one-off" circumstances are involved.
8) When translations are performed, BellSouth sets the AIN trigger.
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8) Challenges associated with insufficient CLEC-to-CLEC interfaces and processes.
9) Challenges associated with data integrity.
10) Challenges associated with MCI LIDB/CNAM data management responsibilities
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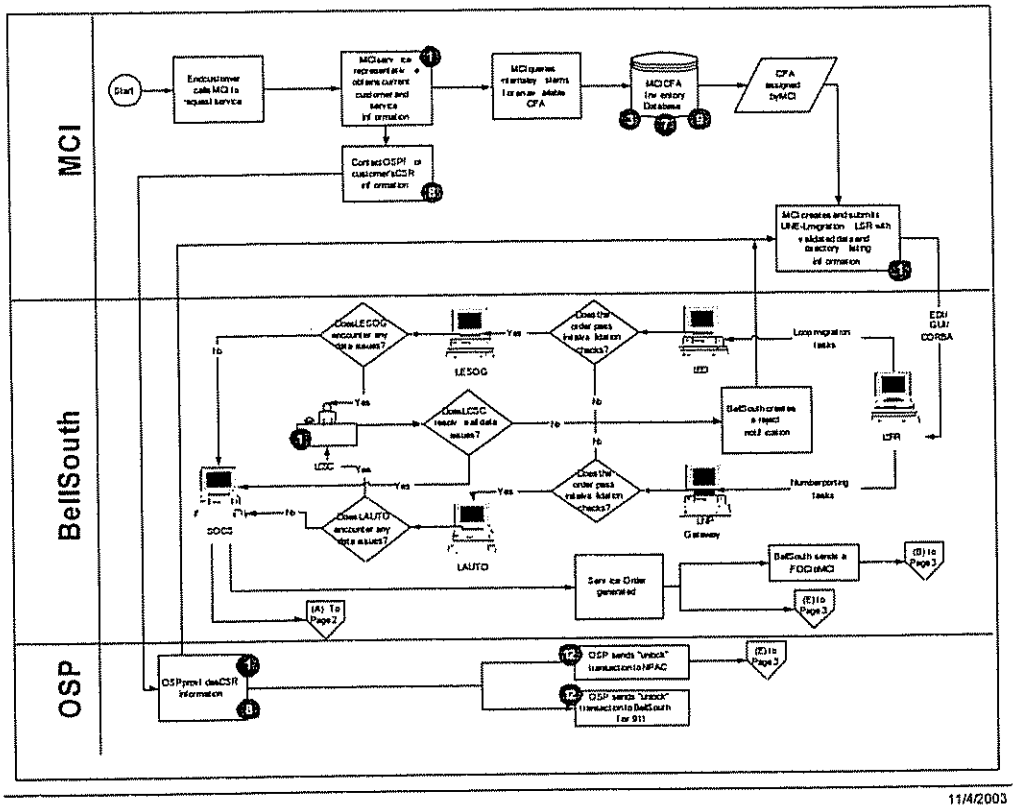
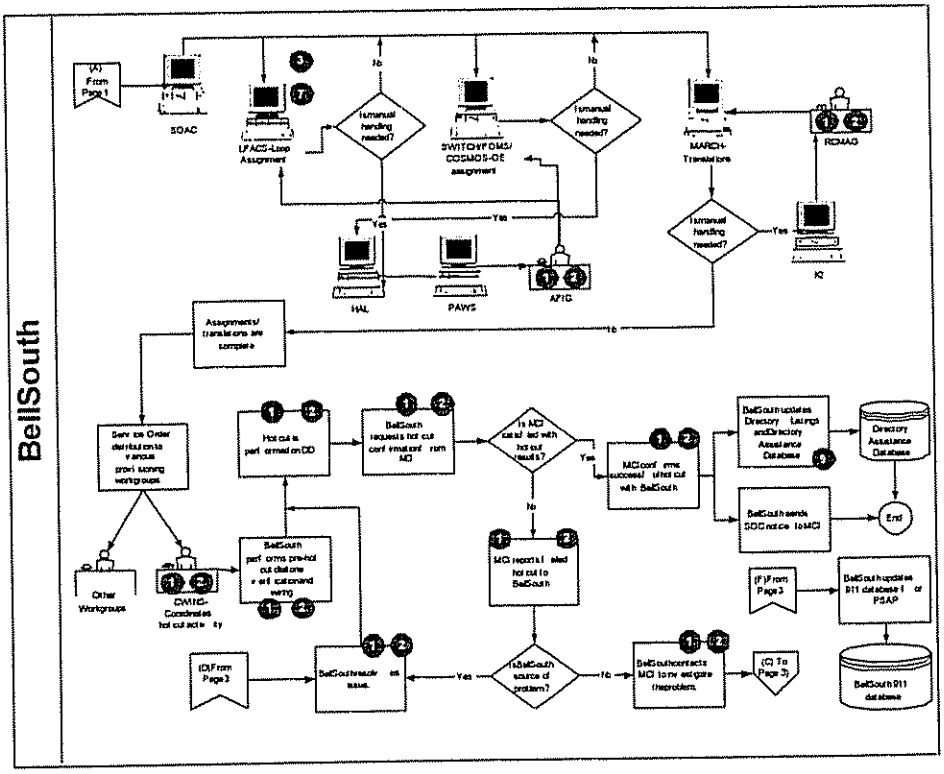
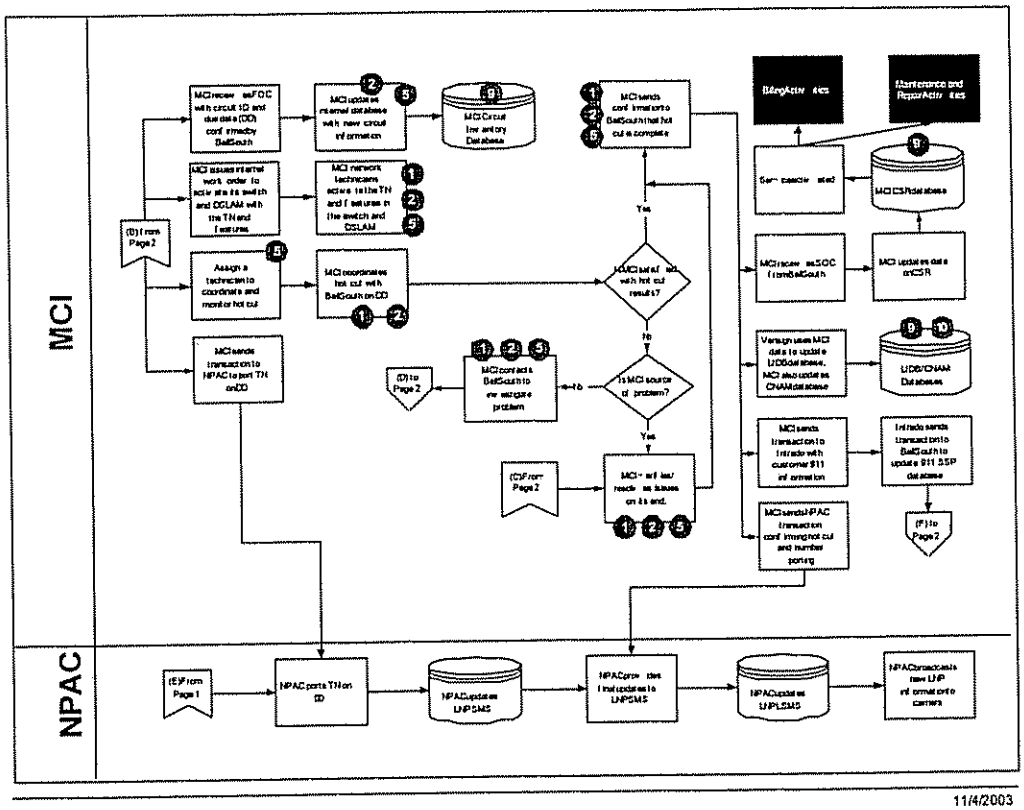

MCI
BellSouth
OSP
Start
End customer calls MCI to request service
MCI service representative obtains current customer and service information
MCI queries wholesaler systems to assign eligible CFA
MCI CFA Inventory Database
CFA assigned by MCI
Contact OSP for customer's CSR information
MCI creates and submits UNE-L migration LSR with validated data and directory listing information
Does LESOG encounter any data issues?
LESOG
Does the order pass relationship checks?
EDI GUI CORBA
Loop migration tasks
Does LCSC receive all data issues?
LCSC
BellSouth creates a reject notification
LSR
Does the order pass relationship checks?
Number porting tasks
Does LAUTO encounter any data issues?
SOCS
LAUTO
Gateway
Service Order generated
BellSouth sends a FOC to MCI
(B) to Page 3
(A) To Page 2
(C) to Page 3
OSP receives CSR information
OSP sends "unlock" transaction to NPAC
OSP sends "unlock" transaction to BellSouth for 911
(D) to Page 3


BellSouth
(A) From Page 1
SOAC
LFACS-Loop Assignment
Is manual handling needed?
SWITCH/FOMS/ COSMOS-OE assignment
Is manual handling needed?
MARCH-Translations
RDMAG
Is manual handling needed?
IG
HAL
PAWS
APTG
Yes
No
Assignments/ translations are complete
Service Order distribution to various provisioning workgroups
Other Workgroups
CWINC-Coordinates hot cut activity
BellSouth performs pre-hot cut customer notification
Hot cut is performed on DD
BellSouth requests hot cut confirmation from MCI
Is MCI cancelled with hot cut results?
MCI confirms successful hot cut with BellSouth
BellSouth updates Directory Listings and Directory Assistance Database
Directory Assistance Database
BellSouth sends SOC notice to MCI
End
MCI reports failed hot cut to BellSouth
Is BellSouth source of problem?
BellSouth corrects MCI to re-initiate the problem.
(C) To Page 3
(D) From Page 3
BellSouth resolves issues.
(F) From Page 3
BellSouth updates 911 database for PSAP
BellSouth 911 database


MCI
NPAC
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MCI updates internal database with new circuit information
MCI Circuit Inventory Database
MCI sends confirmation to BellSouth that hot cut is complete
MCI issues internal work order to activate the switch and DSLAM with the TN and features
MCI network technicians active tn in the TN and features in the switch and DSLAM
(D) from Page 2
Assigns a technician to coordinate and monitor hot cut
MCI coordinates hot cut with BellSouth on DD
MCI sent all with hot cut results?
Yes
No
MCI sends transaction to NPAC to port TN on DD
(D) to Page 2
MCI contacts BellSouth to investigate problem
Is MCI source of problem?
No
Yes
(CD from Page 2
MCI will take reasonable actions to fix and...
BillingActivities
MaintenanceAndRepairActivities
Service activated
MCI CSR database
MCI receives eLSOC from BellSouth
MCI updates data on CSR
Verizon uses MCI data to update LIDB database, MCI also updates CNAM database
LIDB/CNAM Databases
MCI sends transaction to Intrado with customer 911 information
Intrado sends transaction to BellSouth to update 911 SSP database
MCI sends NPAC transaction confirming hot cut and number porting
(F) to Page 2
(E) from Page 1
NPAC ports TN on DD
NPAC updates LNPSMS
NPAC provides final updates to LNPSMS
NPAC updates LNPLSMS
NPAC broadcasts new LNP information to carriers

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EXHIBIT 5

-----Original Message-----
From: Change Control [mailto:Change_Control@BELLSOUTH.COM]
Sent: Thursday, November 20, 2003 2:21 PM
To: 80ta; a lee; a vincent; adsl technician; Alan Flanigan; alejandro; Amanda Hill; Annette Cook; Annette Hardy; asanjuan; B Murdo; B Shafer; B Stewart; B Swager; Becky Gorman; Bette Smith; Beverly Posey; Bill Czolba; Bill Gaboriski; Bill Grant; Bill York; Bob Buerrosse; Brenda Gant; Brian Feller; BSNotes; BSTCarrier; C & M; C Ashford; C Cassel; C Chiavatti; C Flanigan; C Larson; C Miller; C Smallwood; C Soptic; Caren Schaffner; Carol Asenjo; Catherine Gray; Cedric Cox; Change Control; Cheryl Acosta; Cheryl Haynes; Chris Iacovelli; Christy Markley; Cindy Schneider; Colette Davis; Colleen Sponseller; Connie Nathan; Craig Davis; D Burt; D Feinberg; D Kane; D Mitchell; D Nathanson; D Parobeck; D Petry; Daddy Max; Dale Donaldson; Darrin McClary; Dave Townsend; David Burley; David Lee; DDL; Denise Berger; Desiree; Don; Donna Poe; E Goldberg; E Singleton; Ed; Elliott Wrann; Erick Melgarejo; Eyu; Gary; Ggotimer; H Carlton; Hawn Nguyen; Heather Thompson; J Britton; J David; J Johnson; J Mclau; J Nugent; J Oliver; J Perry; J T Wilson; J Wilwerding; Jake Hayes; James Childress; Janice Johnson; Jason Bahr; Jason Lee; Jay Bradbury; jean Cherubin; Jeff Walker; Jennifer S; Jerry; Jerry Hill; JG6837; Joanne Baxter; John Boshier; John Duffey; John Fury; Jordana Jureidini; K Branch; K Pollard; K Turner; Karen Grim; Kraig Nielsen; Kyle Kopytchak; L Hopkins; L Looney; L Mitchell; L Ortega; Lacy Hamlin; Launch Now; Leon Bowles; Linda Minasola; Louis Toyama; Lorna Richards; Lorraine Watson; Louise Wilds; M Boner; M Connolly; M Dossey; M Mathews; Margaret Ring; Maria Aquino; Mark; Mark Ozanick; Mary Conquest; Maya Mistry; Mel Wagner; Mer; Michael Britt; Michael Dekorte; Micki Jones; Midge Houghtaling; Mike Young; Mnoshay; Morgan Halliday; N Dreier; Nancy Thompson; Natalie Franklin; Neustar; Nicole Crauwels; Notifications (Ernest Group); One Point; OSS; P Barker; P Kinghorn; P McKay; P Pinick; Patricia D; Peggy Rehm; Peggy Rubino; Phil Nixon; Pmcole; R Bennett; R Breckin; R Cairnes; R Harsila; R Maimon; R Munn; R Wilson; Rae Couvillion; Rebecca Baldwin; Regina McDay; Rick Williams; Robert; Robert Scordato; Ron Johnson; Ross Martin; Rubye; S Cogburn; S Sarem; Sandra Hendricks; Sandra Kahl; Schula Hobbs; Scott Emener; Scott Harper; Scottme; Sharon Eleazer; Sherry Lichtenberg; Steve Brown; Steve Moore; Steve Taff; Susan Sherfey; T Aziz; T Barton; T Carter; T Fry; T Norvell; T Wimmerstedt; TagTeam; Tim; Todd; Todd Sorice; Tom Hyde; Toni; Tonyam; TS1336; Tyra Hush; W Fletcher; Walter Carnes; Wendy Hernandez

Subject: BellSouth Response to Question re: Bulk Migration Collaborative

CLECs,

In response to the question from Benni Almas (Neustar) regarding BellSouth's plans to establish a Bulk Migration collaborative with the CLEC community:

BellSouth has an effective, seamless Bulk Migration process in place. Consequently, BellSouth has no plans to establish a Bulk Migration collaborative at this time.

If this changes in the future, CCP will forward the invitation to the CLEC community.

Thanks,

Change Management Team